

**AND
REPRODUCTION IN THE MALE**

DISORDERS OF SEX AND REPRODUCTION IN THE MALE

AETIOLOGY, DIAGNOSIS AND TREATMENT

BY

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The Art of Love and Sane Sex Living, Birth Control Simplified, Sex Knowledge for Boys, Sex Knowledge for Girls, Welfare Problems in Rural India, Maternity and Child Welfare, etc.

4 Photographs

33 Graphs

“OUR PROTESTS AGAINST THE SENSUAL DETAIL AND EXAGGERATIONS AND CREDULITIES OF PORNOGRAPHIC PSEUDO-SCIENCE LOSE FORCE UNLESS WE OURSELVES ISSUE SUCCINCT STATISTICS AND PHYSIOLOGICAL SUMMARIES OF WHAT WE FIND TO BE AVERAGE AND BELIEVE TO BE NORMAL, AND UNLESS WE OFFER IN PLACE OF THE PROLIX MUSH OF MUCH SEX TEACHING SIMPLE STATEMENTS CALLED FOR IN ANY SANE INSTRUCTION.”

—R. L. DICKINSON in “*Human Sex Anatomy*”

SALE OF THIS BOOK IS RESTRICTED TO THE MEDICAL
PROFESSION

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TO
HAVELOCK ELLIS
(1859—1939)

“Physician, Philosopher, Pioneer, Prophet,”
through whose influence and encouragement, the
author took up the Study and practice
of the Science of Sex

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INTRODUCTION

Medical science has succeeded in working out cures and prophylactics for practically all ailments flesh is heir to, except in the field of sex. Why this subject alone was neglected, it is difficult to tell, but one can make a shrewd guess as to the probable causes. Disorders of sex seldom cause death or any apparent physical debility and the innate shyness of men as regards this intimate aspect of their life make many of them refrain from complaining of their weakness. Even when doctors were consulted, they laughed at the matter and did not appear inclined to help. Possibly this was due to lack of appreciation of the mental agony and humiliation caused by disorders of sex. To understand the causation of these, much time was required and this the profession was loth to spend. Then again, the psychic factors which cause these disorders and mask their real nature are immeasurable and often unfathomable. To complicate matters, many sex disorders reveal no physical defect or sign, as they are not diseases but merely problems brought on by early faulty training, ignorance of biological facts, or wrong notions gathered from unscientific literature. This the medical profession did not realise and even when realised, it was thought outside the field of the curative art.

Psychologists have published many books on problems of sex, but not on the clinical aspects of its disorders. These the medical profession thought beyond its domain. Psycho-analysts also have published books, but maintained that all sex disorders were caused by the mind and mind alone. This was also beyond the purely medical sphere and the theories these authors put forward were often too ludicrous to be convincing. The urologists then took up the subject and, as a matter of fact, it was only then that the medical profession took any notice of sex disorders. Cases of impotence were vigorously treated with prostatic massage, instillation into the posterior urethra, electricity, and so on. Still, the cases uncured were enormous, because the approach of these authors to the subject was one-sided and the psychic element was neglected. They regarded

"the Human mechanism solely in terms of matter and mechanics" and not as "a body-soul unit."

At about this time, the importance of endocrine glands in bodily functions was brought to the notice of the profession. Many worthless products of these glands were the forerunners of potent and scientific preparations now available. The literature issued by the firms specialising in these products is, in a sense, unscientific and one-sided, as they, like the urologists, forget that the human body is "a body-soul unit." All the same, it made the medical profession take a greater interest in sex disorders. Every case was rightly or wrongly, more often wrongly, treated with hormones. Again, there was no reduction in the number of cases that remained uncured. Truly, what Nefzouri wrote in the sixteenth century in his *Perfumed Garden* is true even today :

"Know, oh Vizir (may God grant you His mercy), that medical men have done nothing but flounder in the sea of difficulties. Each has looked at the thing (sex disorder) in his own way; opinions have multiplied and the only result is a sea of doubt."

I was toying with the idea of writing a book on the right approach as regards diagnosis and treatment of sex disorders, based on my experiences covering a period of fifteen years and six years of research work on hormones. My aim was to give the right perspective as regards the three contributory factors to sex disorders, viz., psychic, endocrinal and organic. When I finished the manuscript of *The Art of Love and Sane Sex Living*, many professional colleagues encouraged me to go on with the idea. So I took up the work, especially as my papers on the subject that were appearing in the medical journals from 1939 were well received by the profession and my books on sex were reported to have been much appreciated by non-medical readers, for whom they were primarily meant.

My work on the ambivalence of sex hormones in the therapeutics of disorders of sex and reproduction is, as far as I know, original and an outline of it was presented at the Scientific Section of the All-India Medical Conference held in 1940. This also was well received. I have been also working out the optimum dosage of hormones that would stimulate the interstitial tissues without damaging or depressing the seminiferous tubules

and *vice-versa* and have outlined a satisfactory plan for hormonal treatment in disorders of sex and reproduction. My vitamin C test for ovulation is also original. The work is new and so I do not claim that my findings are universally applicable. Corrections and modifications may be required with further experience and clinical work.

One fallacy I recently noticed in my work. I used to diagnose, and treat, cases where no spermatozoa were seen in the semen as azoospermia, but now I find that many such cases have healthy spermatozoa in the fluid abstracted by testicular puncture. These conditions are caused by some obstruction in the epididymis or vas deferens, and not really azoospermia. This mistake is being rectified and in the large number of cases of male sterility now on hand, testicular puncture is first done before the question of hormonal treatment is considered. The findings will be incorporated if and when another edition of this book is found necessary.

I do not claim that this book is complete, because aspects of the subject where my experience is meagre have been omitted. For instance, disorders caused by pituitary and thyroid hypo and hyper functions have not been dealt with. Nor do I claim even now that I fully understand the aetiology of all the disorders that come under my notice. Here is a case to illustrate the point. A literary man, aged about 35, married and father of two children, asked me whether I could do anything for a peculiar disorder of his. From the age of 28, he found that after *every* sex act, heterosexual or auto-erotic, his haemorrhoids bled profusely for four days. At other times, due to indiscretions in diet, there was occasional bleeding but it lasted only for a day or part of a day. He was not a "bleeder" and his father suffered likewise. He did not like to be examined or treated with injections. There was no possible explanation that I could offer. I suggested his taking by mouth vitamins C and D. A month later he reported that he was cured of his disorder. Such cases can be multiplied.

I have drawn from other books on the urological and surgical aspects of the subject where my experience has been limited. This should help to guide medical men in approaching the subject from its many angles. The numerous cases given should enhance the practical value of this book.

Prevention is easier than cure and it is the duty of medical men to insist on parents giving scientific and the right type of education on sex to their children from a young age. My previous books on sex are being increasingly used for this purpose. There is yet another duty which medical men owe to society in general and their patients in particular. This is to expose the quackery of unscrupulous vendors of rejuvenating and menstruation-regulating remedies, so widely and plausibly advertised in the lay press. Absurd claims are made by these quacks, such as that the rejuvenating could be effected *at any age* and *within a short period of time* with their nostrums, provided the person is prepared to spend a thousand or more rupees. It may be pointed out that even in pre-historic times, savants all over the world had assiduously tried to discover rejuvenating elixirs without success. Even in recent years, scientists like Brown-Sequard, Voronoff and Steinach have worked towards the same end with only partial success. Decline and decay always follow unhealthy habits and advancing years. This is true of all the systems in the body, but with scientifically controlled treatment with hormones and a rational sex life, individuals can hope to retain their sexual powers to a ripe old age.

The nostrums advertised in the lay press to regulate menstruation are really meant to be used as abortifacients, which are as worthless as the rejuvenating remedies sold. Such advertisements should be censored by the public health department before they are allowed to be published, as they are not only harmful but also morally objectionable. I shall be discussing this subject in detail in the book I am now planning, *Sex without Tears*.

I have to thank the Editor of the *Indian Medical Gazette* for permitting me to include in this book parts of my papers on hormones and the vitamin C test for ovulation that had appeared in the various issues of that journal. I have also drawn from my papers that appeared in other journals, such as *The Journal of the Indian Medical Association*, *The Antiseptic*, *The Medical Bulletin*, and *The Medical Digest*; also from my books on sex published by Messrs D. B. Taraporevala Sons & Co. As full references are given in the original publications, it was thought unnecessary to include many of these in the

bibliography of this book. The more important ones are, however, listed.

Almost all the cases recorded in this book have been referred to me by medical colleagues and it would have been courteous if I had mentioned their names. The patients who suffer from sex disorders are very self-conscious and many of them fear that their friends will recognise their identity from the details given regarding them. If I mentioned the names of their medical attendants, the field will be considerably narrowed and the patients' fears may to some extent be justified. It was, therefore, decided to omit the names of these doctors, to one and all of whom I express my grateful thanks.

In conclusion, I desire to acknowledge my indebtedness to Lt. Col. S. S. Sokhey, M.D., I.M.S., and Dr. K. T. Gajjar, M.D., for many valuable suggestions and corrections made in the manuscript in its original form. Dr. Gajjar did all the bacteriological work in connection with my researches on hormones in spermatogenesis and also contributed in this book the section on the examination of semen.

I hope that the present volume will be found as helpful to the profession, as my previous books on sex have been to non-medical readers.

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A. P. PILLAY

PART I

PHYSIOLOGY AND PHYSIOLOGICAL PROBLEMS OF SEX

I THE ANATOMY AND PHYSIOLOGY OF SEX

II SEX PROBLEMS AND NOT SEX DISORDERS

III CLASSIFICATION OF SEX DISORDERS AND METHODS OF INVESTIGATION INTO THEIR CAUSATION

I

THE ANATOMY AND PHYSIOLOGY OF SEX

Introductory—Disorders of sex are either disorders of the sex act or disorders of reproduction. The former is known by the collective term of impotence and the latter sterility. While sterility is a disorder, cases of impotence, though considered and treated as diseases, are often not pathological conditions but brought on by sheer ignorance of physiological facts. The ignorance unfortunately is not limited to laymen but is seen also among most physicians, and that is the reason why such conditions are diagnosed as disorders. I have consistently maintained that what the majority of persons suffering from sex disorders need is not treatment but a knowledge of biological facts. This many physicians do not recognise, and even if they do, they have not the time or patience nor are they sufficiently versed in the subject to help their patients. It thus becomes necessary to explain anatomical and physiological facts about sex in general and the coital act in particular, even though the book is meant for the medical profession.

COITUS

Erection—The copulatory organ of the male is the penis and if it does not become erect, coitus is impossible. Erection of the penis means that it has to enlarge, stiffen and attain a forward position. The enlargement and stiffening are caused by an influx of blood into the cavernous and spongy tissues of the penis and a diminished outflow from them. This is an involuntary process and brought about by the nerves of the sexual apparatus, first relaxing and then contracting the penile muscles, enabling the blood to rush into their meshes and preventing the outflow. The muscles of the root of the penis later contract and further diminish the outflow of blood from the organ. The more complete the erection, the greater is the contraction of the muscles of the root of the penis and consequently less is the outflow of blood from it. When the organ has become hard and stiff, the erector penis muscles draw the organ well up against the lower abdomen, giving it a forward and slightly upward position.

Normally the erector penis muscles act automatically as soon as the organ becomes hard and stiff. If the stiffening of the organ is not satisfactory, the erector penis muscles do not act. They do not act also when they are weak or under-developed as seen in hormonal deficiency, *viz.*, sexual infantilism and hypogonadism. Cases of defective stiffening of the organ alone without noticeable weakness of the erector penis muscles are not due to hormonal deficiency but caused by psychic or organic factors. If both defects are present, some hormonal deficiency should be suspected.

On sexual stimulation, the urethral glands secrete a mucoid fluid, the quantity secreted depending on the degree of sexual excitement and also on individual variations. The vagina of the female also becomes moist with secretions from its glands, if she has been adequately wooed. When the vagina and penis are properly moistened, intromission and copulation take place with the minimum or no difficulty and the maximum pleasure to both the partners. It may be pointed out that dry parts do not foster pleasurable sensation.

On intromission, the penis enters the vestibule and pushes against the clitoris which has by now become turgid and erect like the penis. It yields and bends before the penis. The glans penis now glides between the inner surface of the two vaginal bulbs and the sphincter vagina muscles and pushes on towards the cervix and, if the penis is long enough, it reaches the posterior fornix or one of the lateral fornices. Ordinarily the vagina adapts itself to the size of the penis through its levator muscles, unless these have been damaged or weakened by repeated pregnancies or sedentary and luxurious habits. On full penetration, the clitoris is pressed hard against the male pubic bone and the glans penis presses against the female sacrum, if the penis is long enough. The sensitiveness of the two copulatory organs is thus intensely increased and with each coital movement and consequent friction between them, the erection of the penis is further intensified and the vaginal muscles grip the male organ tighter.

EJACULATION AND ORGASM

Ejaculation—After a varying amount and time of friction which depend on numerous factors, such as mutual attraction of the parties, the relative sizes of the copulatory organs, absence

of inhibitions, period of continence and so on, ejaculation accompanied by the voluptuous sensation known as orgasm takes place.

The ejaculation of the semen is the physiological end of the sexual act as far as the male is concerned. It is an extremely complicated process involving the whole sexual system. During ejaculation, the secretions of the testicles, which are stored in the seminal vesicles mixed with their own secretions, are expelled into the urethra, where the prostatic secretions are also discharged synchronously. This combined mixture, semen, is expelled by the spasmodic contractions of the ejaculator urinae and the compressor urethrae muscles, in several jets of diminishing force during a period of about ten seconds. The expulsive force is strong enough to project the semen to a distance of even 2 or 3 feet. If semen trickles out instead of being ejected forcibly, it means that the ejaculatory muscles are relaxed or otherwise weak. The average quantity of semen discharged is about 5 cc. The ejaculation of semen is a purely reflex process and once it has started, it is impossible to inhibit or stop it by any amount of voluntary effort or any type of mechanical appliances.

Ejaculation may, in one sense, be considered as an evacuation process, comparable with the evacuation of urine and faeces and meant to relieve the fullness of the seminal vesicles. This can explain nocturnal emissions, but not the ejaculation after coitus or masturbation and other erotic practices. Accumulated seminal tension may cause sex urge, but very often the sex act is indulged in, not so much to relieve the seminal tension, as to satisfy an emotion. This means that ejaculation after coitus is so closely related to emotional needs that the simple evacuation theory becomes inadequate to explain it.

Orgasm—The orgasm or feeling of voluptuousness experienced by the male during ejaculation is believed to be caused by impulses from the posterior urethra, produced by the impact of semen against it and transmitted to the brain where conscious pleasurable sensations are set up. What else causes orgasm is still not clearly understood, but there should be other factors, because when the quantity of semen ejaculated is very small, as after repeated coitus, orgasm is possible. While in one individual the orgasm may amount to no more than a barely perceptible titillation, in another it may reach the acme of both

mental and physical exaltation. Napoleon, for instance, was said to fall into epileptiform fits during orgasm and those suffering from severe cardiac lesions have often died during it.

That the subject has not yet been scientifically investigated or studied is seen from the fact that various fallacious notions are still rampant. These are, for instance, that the mouth of the cervix opens and closes just like that of a fish and sucks in semen and that there is interlocking of the glans penis and the cervix, and so on. All these are scientifically absurd and anatomically impossible. As regards interlocking, Dickinson writes :

“As to the last marvel in lay literature, the glans going directly into the uterus, one notes that the diameter of the penis is four *centimetres* and that of the uterine canal, four *millimetres* or ten to one. As if two fingers held together could enter a nail hole! Only with cervices bilaterally torn, or gaping and swollen can one fingertip engage in the opening, and the glans penis is at least two fingertips in diameter.”

Nervous and Muscular Mechanism—From what has been written so far, it is evident that the sexual act is a complicated process. Really speaking, it consists of a series of processes occurring one after the other, in consecutive sequence, namely, libido, erection, copulation, ejaculation and orgasm. If this order is upset, or if any process is absent, the sex act becomes unsatisfactory, if not even impossible. The sex apparatus is the most delicate mechanism in the body and, as its proper functioning is dependent not only on its own nervous and muscular integrity but also on endocrine and psychic factors, it can be thrown out of gear very easily and by diverse factors. The sex system is interrelated with the other systems in the body and disorder in any of them will have pathological reactions on it.

The chief controlling centre of the sex apparatus is situated in the cerebrum but the one directly connected with and controlling its functioning is located in the lumbar region of the spine. These are known as the brain and spinal centre respectively. The libido, or the conscious feeling of sex urge, originates in the brain centre from impulses through any of the senses—touch, sight, smell, taste and hearing. When libido is aroused, the brain centre sends impulses to the spinal centre which passes them on to the nerves controlling the muscles of the

sex organs. The brain has thus to work through the spinal centre. The nerves connecting the brain, the spinal centre and the sex organs are alternating in the sense that they can carry impulses both ways. That is to say, impulses from the brain centre reach the sex organs and impulses from the sex organs reach the brain through the same nerves. In either case, they have to pass through the spinal centre. If for any reason there is interruption in the nervous chain, as when the spinal cord is 'blocked,' the brain cannot transmit impulses to the sex organs nor the sex organs to the brain.

Here is an illustrative case.

Case 1—A young man of 24 was given an intravenous injection of salvarsan which brought on paralysis of the lower limbs, bladder and anal muscles. He had libido, erection and ejaculation, but the last two occurred independently of the first. That is to say, he did not get erection when he desired, but only when the penis was manipulated and this did not produce any pleasurable sensation. The interruption was apparently somewhere between the cerebrum and the lumbar portion of the spinal cord. After prolonged treatment, the paralysis was cured and the patient's sex powers became normal. He is now the father of three children.

When libido is aroused, the nerves controlling the sex organs operate and erection results. The degree of erection will necessarily depend on the intensity of the libido. If the libido is not much, as when the female partner is not attractive or due to any other cause, erection will be comparatively feeble or absent.

The sex organs that send impulses to the brain are the penis, the seminal vesicles, the prostate gland and the urethra and, to a less extent, the anus. The fact that the penis can send impulses to the brain is best illustrated in the case of masturbation. Even if the man has no sex urge, when he handles the organ impulses are transmitted to the spinal centre which on the one hand causes erection and on the other passes on the impulses to the brain centre arousing sensuous feelings. When the seminal vesicles are full, as after prolonged continence, impulses from them reach the spinal centre which react similarly and erection and libido result.

In the same way, diseased conditions of the prostate gland, the anterior and the posterior urethra originate libido and erection. An example of irritative conditions of the anterior urethra causing erection is seen in acute gonorrhoea. In the

chronic stages of this disease, impulses originate in the posterior urethra. In these cases, the brain centre does not react with pleasurable sensation and there may be even pain associated with the erection. Congestion and hyperaesthesia of the prostate gland and posterior urethra, as seen after excessive coitus, masturbation, constant sexual excitement without gratification and, less commonly, coitus interruptus, also originate and transmit impulses to the spinal centre and the brain. Under this heading should come also diseased conditions of the urine as seen in urinary calculi, nephritis, etc. Artificially, erection can be set by injecting irritants like silver nitrate into the anterior urethra or by applying rubifacients and irritants to the penis. The converse is also true, namely, by injecting local anaesthetics into the urethra or applying them to the glans penis, erection can be depressed, if not suppressed. These factors are made use of in treating sexual anaesthesias and hyperaesthesias. This subject is discussed in detail under their respective headings.

When libido is aroused, erection and ejaculation should follow. Erection would subside only after ejaculation, but if it does without ejaculation, it means usually either that psychic factors, such as inhibitions, are operating or that the nerves controlling the sex apparatus are not functioning as in atonic types of impotence. When the stimulus originates from the penis or accessory sex organs, erection usually precedes libido. The degree of erection will be maximum when stimuli originate simultaneously from the brain, the penis and the accessory sex organs.

Practical Application of Physiological Factors—Now, we shall see what practical use could be made of these facts. Let us take the case of a young married man who is in love with, or at least fond of, his wife. In the early years or months of marriage, the sex attraction will be sufficiently strong to arouse libido and cause erection when desired and he is thus able to have coitus even daily. After a varying number of years, depending on many factors, the sex attraction for the partner becomes less and hence she cannot arouse much desire, thus making daily coitus impossible. If coitus is then desired frequently, the libido has to be aroused or reinforced by stimuli from the penis or (and) the seminal vesicles. This means that the man's penis will have to be handled by himself or by the wife or (and) coitus will have to be indulged in at longer

intervals. Thus in cases of decreased libido seen in men married for years, the condition need not necessarily be pathological and a satisfactory sex life can be lived, if coitus is indulged in at longer intervals and (or) if before each act the penis is handled. What the interval between each coitus in any particular case should or could be and by what method the libido is to be aroused or reinforced cannot be laid down as a general rule, because the libido and sex needs vary in different individuals and with factors such as age, general health, and so on. What particular type of stimulation is most exciting also varies in different persons.

Endocrine Mechanism—The endocrine factors in sex are discussed fully in Chapters IV and V and here only a few elementary facts are mentioned. The sex urge or libido is believed to be caused primarily by the erotization of the sex centre in the brain by male hormone. This needs explanation. It was mentioned that libido originates in the brain centre through stimuli from the senses or the sex organs. These stimuli will not cause libido, erection or ejaculation unless the male hormone has already erotized the brain centre. For instance, in the very young and very old and in sexual infantilism, the male hormone is not present in sufficient quantity to erotize the brain centre which will not react to stimuli received from any source and cause libido or erection or ejaculation. It is better, therefore, to state that the male hormone prepares the brain centre to receive erotizing influences from the various senses.

Full erotization of the brain centre takes place round about the time of puberty, when secretion of the male hormone is most profuse. "In the human individual, the microscopic studies of R. A. Moore (1936) on the prostate gland suggest a temporary flush of hormone secretion just at birth, a lower grade of secretion sufficient to cause prostatic growth up to approximately ten years of age, a rather sudden onset of more active secretion at the pubertal age of ten to thirteen years, a constantly active secretion up to approximately the fifth to the sixth decade and a gradual production thereafter. Some individual variations from the norm may be as great as ten to twenty years on the decline since prostate glands in the average show evidence of diminished testis secretion in the fifth or the sixth decade, whereas occasional individuals may present good evidence of hormone secretion even in the eighth decade."

It is thus clear why the sex function is usually in abeyance in childhood, active upto the fifth or sixth decade and on the decline in later years of life. Even in the middle period sexual anaesthesia may occur and this, when not due to physic factors, is caused by endocrinal upsets. Sexual hyperactivity is also occasionally noticed and this is due to hypergonodism and hyper-pituitarism caused by hyperplasia or neoplasm of the testicles or the anterior pituitary gland.

Whether increased sex activity would increase hormone production is still a matter of controversy among the leading authorities. I am of opinion that it does, at least temporarily. By this I mean not sexual excesses, which may in some persons cause sexual anaesthesia and the atonic type of impotence, but regular and regulated sex life and other erotic sex activities. Increased erotic activity increases the exocrine function of the testicles and accessory sex organs. Why should it not also increase their endocrine activity?

TYPES OF MEN

As regards sex activity, it is unwise to compare one individual with another. Two persons who are similar in height, build, intelligence, occupation and so on, may be absolute contrasts as regards their sex activity. Men and women may be broadly classed temperamentally into two types as outlined below but this has nothing to do with hormones.

“Meader has outlined two types of women, namely, the uterine or maternal type and the clitorid or sexual type. Rene Guyon suggests in his book, *Sex Life and Sex Ethics*, that men may similarly be classified into two types, the orchitic type and the phallic type, the former corresponding to the uterine type of women and the latter to the clitorid type. The orchitic type of man, like the uterine type of woman, is faithful to his sexual partner and does not crave for change or for other forms of sexual excitement. If a married man, he is unlikely to want a mistress . . . If a bachelor, he will develop regular and periodic habits . . . He is fond of family life, of the fireside and of children. He often displays greater intelligence than the uterine woman, but he has little artistic ability and is generally conservative; he belongs to the type of good administrator, of the perfect Civil Servant, of the good husband.

"The phallic type of man has the qualities and defects of the clitorid type of woman who loves a man for his own sake and knows no satisfaction greater than sexual enjoyment, i.e., love, as it is called. As Rene Guyon observes, the typical member of the phallic type is completely dominated by '*La Femme*'; the *odor di femina* is his daily bread. In fact he is obsessed by the thought of women. If married to some quiet and faithful woman of the uterine type, he will make a martyr of her; he may himself be in despair at the suffering he causes, but he will remain none-the-less incapable of living without change and without sexual liberty".

This classification of men and women will be found helpful to arrive at a diagnosis in some types of sexual hyperaesthesia and anaesthesia. For instance, a man might complain of comparative loss of libido as far as his wife is concerned. He may be a phallic type of man. Other classifications are possible, such as the hypersexual, the hyposexual and so on. The one extreme is represented by the Don Juans and nymphomaniacs seen fairly commonly in society, and the other extreme by the so-called "family slaves" who would prefer living a celibate life with their blood relations rather than marrying or contracting other forms of sexual relationships. The majority of men and women belong to the intermediate types between the two extremes.

POLYEROTISM

This is a convenient place to describe polyerotism. Polyerotism is often confused with polygamy and monoerotism with monogamy. Havelock Ellis explains the difference between these terms :

"Confusion has been introduced, it must be made clear, by using the word 'monogamy' in the wrong sense. It is, for instance, common to say that one sex is more 'monogamic' than the other sex, especially that men are 'polygamic' while women are 'monogamic.' Strictly speaking, such statements are meaningless. At the outset it is obvious that since the sexes are born nearly equal in number (with, at the start, a preponderance of males), the natural order in a civilised society cannot work out as two wives for every man, and in the societies which recognize polygamy it is only practised by a small wealthy class. But it is incorrect to assert that in our civilization, men

(rare exceptions aside) ever desire two wives, whether in the same home or in separate homes; there are various considerations of different orders which make such an arrangement undesirable for the majority of men; while, for a woman, to carry on two families, with separate fathers, is still more impracticable; she is necessarily 'monogamic.'

"In fact, that is the wrong word to use. The people who discuss whether men are more 'polygamic' than women, really mean more poly-erotic. That is to say, not whether they desire more marriages but more sexual freedom. To say that a man is monogamic still leaves open the question of whether he is mono-erotic or poly-erotic, and if it is decided that he is poly-erotic, that by no means implies either that he is polygamic or that he is promiscuous, which involves indiscriminate sexual attraction without selection, a state of things not found, save occasionally in insanity. Much confused and futile discussion has been caused by this ignorant misuse of terms.

"It would seem that most persons, women as well as men, are monogamic and poly-erotic. That is to say they only desire one permanent marriage, but they do not find that that relationship stands in the way of sexual attraction to one or more other persons, though the attraction thus aroused may be felt to be of a different nature to that experienced for the permanent partner, and it may prove quite possible to hold such attractions more or less in control. There appears to be no sexual difference in this matter, women are fully as well able as men to experience affection for more than one person of the opposite sex, though on account of the deeper significance of sex for women they may be instinctively more fastidious than men in sexual choice, and on account of social and other considerations more reticent and cautious than men in manifesting or in yielding to their affections."

My including this subject under the endocrine mechanism of sex function should not be taken to mean that polyerotism is caused by endocrinal upsets. It is inborn in almost all human beings and seen also in animals. The tendency for polyerotism begins after some years of married life when the sexual attraction of the wife wanes. It is, therefore, not a disease though a common cause of *relative* decrease of libido and erectile powers. The subject may more appropriately be included under the psychic mechanism of the sex functions.

Psychic Mechanism—This is a difficult and wide subject. First of all, we have to decide whether stimuli from the senses should be included under this heading. These factors have already been described. There is no function of the body in which the mind plays a greater part than as regards the sex function, but usually psychic factors are important only in producing anaesthetic disorders. In some otherwise anaesthetic individuals, psychic factors play an active part in their sexual life. Such instances are romantic liaisons with married or unmarried women, sex life in circumstances where there are danger of detection and so on. These are seen in the phallic type of men who are impotent in the sequestered life of marriage but are potent only in circumstances which would ordinarily depress libido and erection in others.

The two psychic factors that cause sexual weaknesses are inhibitions and fixations. The words are self-explanatory. According to Stekel, this is how inhibition acts :

“In consequence of a chance inhibition, erection is prevented. The influence of the inhibitory notion is not recognised, and the temporarily (conditioned) impotent individual considers himself permanently impotent. On account of fear and auto-suggestion, the potency then becomes permanently impaired. The cause of the impotency is then the notion : ‘you are impotent.’ But the patient subsequently attributes the impotency to masturbation, although he cannot explain why the ill effects of masturbation should only make their appearance after ten or twenty years of health.”

Fixations are usually on a particular woman or a particular type of woman, usually resembling the one with whom the patient came first into intimate contact or had his first sexual intercourse, or similar other factors too numerous to mention. It produces impotence only of the relative type to begin with. The patient feels, however, that he is actually impotent and he becomes impotent. Examples of the various types of fixations and inhibitions will be given under the different types of sex disorders.

II

SEX PROBLEMS AND NOT SEX DISORDERS

Before discussing diseases of the sex functions, it is necessary to give the correct lead as regards some biological facts about which confusion still exists in the minds of many men including doctors. The unscientific literature that is being continuously published by advertising quacks gives distorted versions of facts which are taken by the public as scientific data. This makes confusion more confounded with the result that many men develop psychic types of impotence purely through ignorance, or imbibing wrong notions, of the subject. This chapter is thus as, if not even more, important than those which follow. Dickinson rightly says :

“Considering the inveterate marriage habit of the race, it is not unreasonable to demand of preventive medicine a place for a proper section on conjugal hygiene that might do its part to invest with dignity certain processes of love and begetting.

“Our protests against the sensual detail and exaggerations and credulities of pornographic pseudo-science lose force unless we ourselves issue succinct statistics and physiological summaries of what we find to be average and believe to be normal, and unless we offer in place of the prolix mush of much sex teaching simple statements called for in any sane instruction.”

THE PENIS

Length—The length and thickness of the penis are often subjects of speculation and cause as much misery to the men as real impotence. As a matter of fact, a large proportion of men who attend my consulting rooms come to ascertain whether their organ is normal in size and if it is not, whether its size could be increased. When questioned as to why they think so, they would say either that they had been to a prostitute who laughed at the small size of their organ or that when bathing or taking exercise in the company of others, they noticed that their companions had bigger-sized organs. The unfortunate part of it is that this belief causes an inferiority complex which originates a train of inhibitions which produce sooner or later psychic impotence.

The question to consider, therefore, is what the normal size of the penis should be. In the quiescent state, it may be only an inch or even less. The contractile penile muscles are easily influenced by heat, cold and emotions, such as fear, anxiety, mental pre-occupations, erotic thoughts and so on. In the cold season, or when bathing in cold water, the organ almost disappears inside the fat of the mons veneris. If the man is asked to bathe or wash the parts with hot water, he will find the penis becoming longer to his great satisfaction and relief. When he is worried or is in similar other depressional moods, the penis appears very small. Usually it is at this time that he looks at his organ and feels frightened at its being so short. On the other hand, when he thinks of women or erotic possibilities, the organ slowly increases in size. These facts should be explained to the patient.

The correct way to measure the size of the penis is when it is on full erection. As coitus proceeds, the organ increases further in length and thickness and attains its maximum size just before ejaculation. This, therefore, is the right time to take its measurement. The length is usually measured from the root of the penis to the tip of the glans. When this is done, on full erection and just before ejaculation, the patient will find that his member is after all not so short as he thought and this in itself is sufficient to remove his inferiority complex and the inhibitions associated with it.

It is said in text books on sex that the size of the penis has very little relation to the general size of the body. Even Dickinson, probably one of the most scientific and accurate observers, says : "There is little relation between the various measures of the penis with each other, or any of them with body weight. This latter bears out Piersol's observation that the size of the penis has less constant relation to general physical development than that of any other organ of the body. Indeed the external genitals are rather uniform in size . . . "

The last statement that the external genitals are rather uniform in size is right but not the first, according to my observation. If we pick up, say, 100 men of the same height and build, we shall probably find that over 90 of them have penis of more or less the same size, but if we take 100 small made men and 100 big made men, we shall not find the same uniformity. During the last world war, I must have examined

thousands of troops for venereal infection. At that time I was not especially interested in the subject of sex, but my impression was that in big-made men, the large penis and in small-made men the small penis is the usual rule. Then again, recently, I have been questioning men who are under treatment or whose wives are under treatment for sterility (not for impotence) as regards the size of their penis. The investigation so far has borne out my contention that tall men have long penis and *vice versa*. Exceptions are possible but rare. Here I am not alluding to sexual infantilism. Van de Velde says that the large penis is "conspicuously hereditary and seems to run in families. And it is also *racial*. Negroes, for example, are generally taller and more massive, than white men; and they also number among them, proportionally to their own average, more extreme "phallic giants' than the whites."

I have no data to prove or disprove Van de Velde's statement that the size of the penis is influenced by heredity, but I can endorse his statement that it differs in different races. For example, the Pathan and the Sikh are big-made men and they have larger-sized members than the other natives of our country. As a general rule, it may be stated that for a short man a penis which on erection is 4 to 4½ inches may be considered as normal, for a medium-sized man 5 to 5½ and for a tall man 6 to 6½ inches. Dickinson, after going through most of the available literature on the subject, says :

"Averages made up from the statements of the nine authors who give any data show the flaccid penis 10 cm. in length and 3 cm. in diameter, and 8.5 cm. in circumference (4"×1½"×3½"); and the erect penis 15.5 cm. long, 4 cm. broad and 11 cm. around (6"×1½"×4½")." Long organs even upto 8 inches are often met with in big-made men. These are rare in small-made men, at least I do not remember having come across a single case. Occasionally, one comes across a tall man having a small organ. This I am inclined to consider as a form of modified sexual infantilism or more probably as arrested development.

The human body is the most perfect piece of mechanism, with all its parts proportionately formed. Why should the sexual organ alone be small, out of proportion to the other parts? A friend enquired after reading this Chapter why then should the size of the nose vary in different individuals, whether big or small made. This question should be answered

by an embryologist and I do not think the two instances are comparable to each other. We can come only to one conclusion and that is, that it is due to some endocrinal upset during the foetal or post-foetal period of development. There are very few scientific data published as regards the relation between general physical development and the size of the male organ. In frescos and other carvings, we see small men with huge members and some ancient classics like *The Perfumed Garden* dogmatically assert that for the full sexual satisfaction of women, the penis should be from $6\frac{1}{2}$ to 9 inches in length. In impressionable men, such distorted versions cause an inferiority complex. It would be interesting if doctors who specialise in sex and venereal diseases collect data on the subject, also as to whether beginning of sex activity from an early age influences the size of the copulatory organ. It is well known that in women it does.

We may face a vicious circle as regards men. Adult males who consider that their member is small usually keep away from women and comparative statistics will, therefore, be difficult to secure. All told, I am of opinion that a small organ in a tall and otherwise well built man is a development anomaly which will not be so marked if he was accustomed to regular sex life from an early age. A very huge penis in a short and small-made man is abnormal and a developmental upset which has no connection with sex life, at whatever age it started. The physiological use of the sex organ from an early age will correct minor developmental defects and bring it to the normal size for that particular man's height and build. Here it is not necessary to discuss whether this is right or harmful, the point stressed is only as regards the size of the copulatory organ and its relation to regular sex life. I am not theorising but basing my opinion on the data which I have been able to collect from a small group of men. Even if it was theorising, it is justifiable as we see that disuse often promotes atrophy in other muscular structures of the body and *vice versa*. Cases of sexual and general infantilism are easy to diagnose as they show other signs and symptoms. Treatment would definitely help in increasing the length of the penis in these cases. The point to bear in mind is that, except in cases of infantilism, no treatment will benefit after adult age is passed. Mechanical appliances like vacuum pumps, local appliances and oral products are widely advertised by unscrupulous manufacturers for increasing the size of the penis. They are all worthless but the fact that they are

widely patronized by the public is an indication that most men desire or aspire to have long members.

Girth—The thickness or girth of the male organ should be measured on full erection, preferably just before ejaculation. The greatest circumference is just behind the corona and the root is usually, though not necessarily, thinner than the other parts of the organ by about an inch. Dickinson advises the measurement to be taken at about the middle of the shaft. The relation of the girth of the penis to the size of the body is more uncertain. Here we have to distinguish between muscular development and stoutness of the body. In men with well developed muscles the penis is thick while in stout (fatty) men, a thin penis is the rule. This is due to a disturbance of the endocrine system. A thin man may be endowed with a thick organ. In such cases, the remarks under long penis would hold good. The circumference taken at the root varies from $2\frac{1}{2}$ to 3 inches, while behind the corona it is usually greater by an inch or even more.

Many men complain that their penis is narrow at the root. This is not pathological, as was just explained. After the adult stage has been reached, it is not possible to increase the length of the male organ, except in definite cases of infantilism, but the thickness or rather its turgidity can be increased to some degree in many cases by vacuum pumps and hormonal injections. These act by improving the circulation and increasing the vascularity of the organ and not by any increase in growth. The increased girth will be more noticeable on erection and much should not be expected.

Small Sex Organ and Satisfactoriness of Coitus—The point that causes worry to men about the length and girth of their organ is the fear that they may not be able to satisfy women in sexual congress. It should be made clear to them that the depth of the vagina is not so much as untutored men believe it to be. I say this because I find in my birth control practice that the sizes of the diaphragm pessaries I fit vary from 65 to 85, the average being 75 to 80. This means the depth of the vagina from the sacrum to behind the symphysis bone is from about $2\frac{3}{4}$ to about $3\frac{1}{2}$ inches, the average being about 3 inches. Add to this on an average an inch for the thickness of the symphysis bone and the tissues covering it. This means a penis of about 4 or $4\frac{1}{2}$ inches can traverse the whole vagina. There

is a belief among men that for the sexual satisfaction of the woman, the penis should touch the cervix during coitus. This belief is correct as far as some women are concerned and a four or four and a half inch penis can easily accomplish it.

Then again, if the penis is thin and the vagina wide, variations in coital postures can easily bring about adaptation between the two organs. If the thighs of the woman are kept close together after intromission and, if necessary, crossed one over the other, the width of the vagina is narrowed. It may be repeated that the vagina is an elastic tube and its walls can adapt themselves to the size of the penis unless it is abnormally thin or the vaginal muscles are damaged or extremely relaxed through repeated pregnancies, sedentary habits and fat producing diet. In these cases, suitable exercises and regulated diet would correct or at least improve the condition.

It may be argued that all this is purely academical and it has no practical value. The size of the penis is one of the commonest causes of psychic impotence, though I have seen men with members of $4\frac{1}{2}$ inches in length who have produced a large family and who indulged in daily coitus even up to the age of 60.

THE TESTICLES

The size of the testicles also gives rise to apprehension. Men are, however, less worried about this than about the size of the penis and it very rarely produces psychic impotence, though sometimes an inferiority complex is caused by it. The size variation has no relation whatever to the general size of the body. The testicles vary in size from about that of a marble to a small lime. Here also it is very difficult to lay down hard and fast rules as to what their size should be in a particular individual. Sexual infantilism, hydrocele and similar pathological conditions affect the size of the testes. If a young man is worried about the size of his testicles, no treatment is necessary, provided his sexual power and the quantity of semen discharged and its sperm count are normal.

I have seen men with small-sized testicles having full virility and discharging a normal quantity of semen containing even 200 to 300 million spermatozoa per cc. The patients who complain of small sex organs should be told that this alone does not mean sterility, impotency or inability to satisfy women and that in most cases no line of treatment is needed or would

help, not even the nostrums so widely advertised in lay press as "infallible remedies for increasing the size of the sex organs."

The relative level of the two testicles often frightens young men. They should be told that the left testicle hangs at a lower level than the right and that it is not a disease.

URETHORRHOEA

Another condition that frightens men is urethorrhoea. By this term is meant a discharge from the urethra. It was mentioned that during sexual excitement, Cowper's and other urethral glands secrete actively. The quantity of secretion varies in different individuals, in some it is only just enough to cause a moistness of the glans penis and the meatus, while in others it is much and forms a definite discharge. This is a physiological phenomenon though it often frightens patients into believing that they are losing semen and on the road to impotence. Often the patient may tell the doctor that he is suffering from a discharge from the urethra, hiding the fact that it is only on sexual excitement. It has been reported that not uncommonly doctors, without examining the patient or going into the history of the case or getting the discharge examined microscopically, diagnose and treat such cases as gonorrhoea. Of course it is possible for gonorrhoea and urethorrhoea or non-venereal urethritis to exist together. A microscopic examination of the discharge will settle the diagnosis.

FREQUENCY OF COITUS

A point that often causes anxiety to men is as regards the frequency of coitus. If a man hears, for instance, that his friend indulges in coitus daily once or more, he develops an inferiority complex if he can have coitus only once or twice a week or at longer intervals. He would, therefore, wish to find out what the normal frequency of coitus should be. The teachings of authorities on the subject are so conflicting as to be scarcely helpful. On the conservative side is Hammond who writes: "Twice a week is certainly excess for the majority of men and will certainly lead to earlier than normal extinction of the sexual powers. Once a week is more generally applicable and can as a rule in healthy men be taken as a guide from the 25th to the 40th year. Previous to the twenty-first year sexual intercourse should not be practised at all, and between that age and twenty-five, if indulged in it, should certainly not be more

frequently than once in ten or twelve days; and it is a law to which there are no exceptions that the greater the excess the sooner will the natural power be lost. If the individual desires to retain his ability to a green old age, he will not tax it too severely in his youth." I do not agree with the statement of Hammond, either as regards the frequency or as regards the age at which sex life could begin. His statement that early sexual excesses will cause early extinction of sex power is also open to question.

Stekel goes to the other extreme. He says: "I have seen husbands who have completed a daily intercourse for over twenty years and others who, in spite of daily copulation with their wives, found pleasure elsewhere and assiduously indulged in erotic affairs without depriving their wives of their customary amount of sexual intercourse (if for nothing else, at least to avoid suspicion). Patients have reported to me that they have practised repeated copulations daily for several years, and yet I was unable to establish any injury to health or nerve force. The normal man must be in a position to complete coitus several times in one night or in another period of time." Havelock Ellis is more scientific in the advice he gives. He writes: "Rules have, indeed, been laid down from antiquity: Solon advises three cohabitations a month, which agreed with the general opinion of Greek physicians. Luther's dictum of twice a week commends itself to most. Harvey, putting together various American tables, finds that the medium frequency of coitus is about eight times per month, the middle 50 per cent. ranging between three and fifteen times. There are sometimes advantages in a certain irregularity, an unusually speedy repetition being followed by a long intermission, this repetition may easily occur at the woman's desire, just after menstruation. As desire is usually more irregular and more capricious in the woman than in the man it is the wife who may properly be regarded as the initiator in this matter and the husband may find to his advantage in according her this privilege. But, it may be repeated that it is in any case better to space out the acts of intercourse rather than to multiply their frequency. Its benefits, both physical and spiritual, tend to be lost by frequent repetition. Sexual union can only become the fine ecstasy it is capable of becoming when it is rare.

"The cultivation of coitus as a frequent habit is also undesirable because it renders difficult the long intermission

which may be necessary during absence, illness of one of the partners, or the period (a month or six weeks) following childbirth."

The average physician has no more idea than his patients as to how often sex life should be indulged in. A patient once told me cynically: "I went to Dr. X., a young and virile fellow. He advised sexual union as often as I desired. I then consulted Dr. Y., an elderly prude with a masculine-looking wife. He advised that sex life once in a month was ample." There is a great amount of truth in this, because as some doctors have no scientific knowledge of the subject, they advise their patients according to what they practise. It is difficult to dogmatize on how often a man may or should have sexual intercourse, because the urge for it varies in different individuals of the same age group, whether married or single, and whether the sexual partner is attractive or not and similar other factors. Then again, it is now believed that there is a cyclic variation in the sex urge of men just as in women, in whom it is strongest just before and after menstruation.

When I am asked this question, I begin by explaining that sexual intercourse is a normal way of expressing a biological need and that it is not only for procreation but forms also a form of relaxation or recreation. This is to remove any preconceived notions about the harmful effects of normal coitus. I then advise that coitus should be indulged in only when both the partners feel the need and inclination for it. If even after daily intercourse, the parties do not feel any mental depression or physical exhaustion the next day, it is normal for that couple. "A comfortable sensation of relaxation without miserable after-sensation should be the rule." If, on the other hand, even after a weekly coitus the parties feel depressed mentally and physically, they should consider even this frequency too much for them. In these cases, however, the possibility of the persons being hypochondriacs or having inhibitions, should be considered.

Ordinarily what we find is that among educated persons, the frequency of coitus is probably daily in the first few months of marriage and the interval increases in direct proportion to the years married. There may be persons who may have more than one coitus daily in the first few months of marriage. In the second year, it may be two or three times a week, later it may be four or five times a month and so on. Among the uneducated, the frequency is less variable. They have no other

means of relieving their nervous tension and so indulge in coitus almost daily right through their life. This is not because of increased sex urge or greater sexuality but merely to relieve their nervous tension and thus ensure sound sleep.

In considering the frequency of sex life, we have to differentiate between the sex urge, the ability to have coitus and the actual coitions a person is having. We have also to consider whether the man is married, and if so, whether his wife is sexually attractive. If he is not married, he may be having liaisons with a succession of girls, in which case he can and may indulge in coitus probably daily. So when a man complains that he can have coitus only once or twice a month, it is wrong to diagnose it as a case of sexual weakness without taking into consideration the factors mentioned.

COITAL TIME

Even more important than the frequency of coitus is the coital time. The exact time taken for the coital act varies in different individuals and in the same individual under varying conditions. This makes it difficult to say what the coital time should normally be. Authorities differ as to how long a satisfactory coitus should last. Lowenfeld believes that a coitus lasting ten minutes should be considered normal, while Effertz considers that a potent man should be able to have coitus for fifteen minutes. These statements are dogmatic and confusing. It is safe to assume that if a man can have coitus long enough for him to have satisfaction and to give satisfaction to his partner, his coital time is normal for him. A patient, an unmarried man, reported to me that he usually times his coitions with various women and has found them to vary from two minutes to over forty-five minutes on different occasions. The coital time depends on various factors, such as the sexual attraction of the partner, the period of continence, general health, adaptation between the copulatory organs, co-operative-ness of the female partner, when and where the coitus is carried out and the presence of inhibitions and fixations. The first coitus lasts a shorter time than the subsequent ones. These are general factors.

Causes other than those described which reduce the coital time are pathological conditions and these will be described later. It may be mentioned that if a patient complains that his coital time is short on one occasion or with one woman and

long at another or with a different woman, it signifies not that his virility is less but that he has some inhibition. A common complaint heard is that of men whose coital time is long with their wives but short with their mistresses. Many of them know that they are doing wrong in keeping mistresses and then again, as the latter may be younger and more attractive than their wives, they aspire to give them full sexual satisfaction. I do not think any line of treatment would help in these cases. Often we come across men who have a fairly normal coital time but who want it to last an hour or more. Such men deserve no sympathy and should not be encouraged, unless their wives desire it. In these cases, treatment may be of no avail. I do not think that age by itself has any marked relation to coital time as long as the sexual power is strong and the partner is attractive. When age affects libido and erectile power, the coital time will be short. This is physiological.

Cases illustrating some of the points discussed in this chapter are given. It may be remarked that some of these cases illustrate not only problems but also anaesthetic disorders and sexual neurasthenia.

Case II—A young man of twenty-one, very imaginative, used to attend a gymnasium along with others of his age. They wore tight knickers while exercising. He noticed that while in others the sex organs produced an appreciable "lump," in him this lump was scarcely perceptible. This caused self-consciousness and he felt that others noticed his defect. I believe a friend of his whose "lump" was considerable chaffed him about it. Later it turned out that this champion had a double hydrocele! The young man stopped attending the gymnasium. Though he had powerful erections and occasional nocturnal emissions, he felt he was impotent. Could a man whose organ produced a scarcely noticeable lump be potent, he argued?

A bright idea struck him. He would visit a prostitute and see what her reactions would be. He went to a particularly heartless, money-grabbing woman who took her fees in advance. His nervousness made an erection impossible though the woman tried to help by manual manipulation. The penis continued to be quiescent. She laughed at him as being an impotent man with a penis "smaller than that of a dog" and threw him out of the house. The man was small-sized, weighing 93 lbs. and the penis was on the small side, $4\frac{1}{4}$ inches on erection. He took courage in both hands and visited a doctor and confessed his fears and adventure. The doctor laughed after examining him and said that he would be no good with women. He began a peregrination from one dispensary to another. Some doctors tried injections of the male hormone. He remained uncured

and unconvinced and no one would give him the assurance that he earnestly sought—that he was normal and potent. If he had been only assured that the size of his penis was normal for his height and build and he was quite a potent individual, the poor man would have been saved months of mental agony and much expenditure. That no doctor did and the few who did so, spoke so unconvincingly that he was not convinced.

When he came to see me, he had once tried suicide unsuccessfully. It took me over three weeks of patient teaching and analytic and psychic treatment to make him realise that he was normal and shed his inferiority complex. In this case I do not think that any treatment would have helped to increase the length of the penis. I gave him, however, injections of small doses of male and follicular hormones, as the inferiority complex depressed his erectile power. The principle behind this line of treatment will be discussed in the Chapter on Endocrines.

The man, when he was assured that he was normal and potent, kept a mistress aged about seventeen, and lived a successful sex life with her. Once he had twelve intercourses in 64 hours! During the analytic treatment, it came out that while young he had on one occasion acted as a passive agent in sodomy. I find again and again in my practice that men who even on one occasion had taken the passive part in homosexual practices often developed an inferiority complex, especially if their sex organs were small.

Case III—A man, aged thirty-one, powerfully built, was worried about the size of his organ. He was 5 feet 11 inches in height but his penis on erection was only about 5 inches. His history was that five years ago he had sexual intercourse with a girl of about his own age who was engaged to be married but whose fiancé was at the time away from the station. The girl twitted him about the small size of his organ. The intercourse, as far as he was concerned, was successful, but the girl's ridicule hurt his pride. He took her statement as gospel truth. The woman was not a professional but was respectable and engaged to be married. The probability, therefore, was that her fiancé with whom apparently she had sex relations, had a big-sized organ.

The patient after this experience kept away from women thinking that they would laugh at him. Recently, he visited a professional woman who made a similar remark about his penis. That was the reason why he consulted me. His libido was normal, erection strong and coital time satisfactory. He could even have two coitions in one night at an interval of half an hour. I did not think that any line of treatment was called for under the circumstances and so explained to him that a big-made man may have a small organ and yet be potent. The prostitute's remark was probably based on the mistaken notion shared by many that a big-sized man should always have a big-sized organ.

Case IV—The details of this case are more or less identical as the above, except that the man was forty-two when he consulted me.

He was obese, the fat distribution being more of the feminine type. He was seduced to sodomy at the age of sixteen. At the age of twenty-three, he went to a professional woman who said his penis was small. He then resorted to young men in the active role and three or four times in the passive role. He became convinced that he was no good with women and that he was a born homosexual. His organ on erection was $4\frac{3}{4}$ inches and his height 5 feet 6 inches. The excessive fat on the mons veneris made the organ look small. He has had successful sex life with professional women on various occasions but his leanings, he said, were more towards men. After a prolonged interview with the man, I was convinced that he was not a true homosexual. It was fixed in his mind that as his organs were small, women would ridicule him but not men and that is why his leanings were towards men. What he wanted was analytic treatment, but this he could not take, as he was in the Navy and his boat was leaving the port the next day.

In this connection it may be mentioned that some authorities consider that a stunting of the sex organs is commonly seen in true homosexuals. It is more probable that in many cases the small size of the organ may be the cause why some men resort to homosexuality, as in the case just described.

Case V—A man aged thirty-four, widower, consulted me, about the size of his organ. His first marriage lasted four years and his wife died two years ago. He had no children by this marriage but his libido, erection and coital time were always satisfactory. Recently, he became acquainted with a woman and had sex life with her. She said that his penis was small and that she did not derive any pleasure from coitus with him. He remembered that his wife also had mentioned that she derived little pleasure from sex life with him. After this, he noticed that his erection was feeble or subsided when he approached women. He wanted to know whether I could suggest anything to increase the length of the organ. If this was not possible he wished me to advise him if he could use a padded sheath so that when it is put on the penis, it would appear long and thick. The man was 5 feet 4 inches in height and, according to him, the organ on erection was only $3\frac{1}{2}$ inches. I enquired how and when he took the measurement. He said he measured it when he got erections in the morning. I advised him to take the measurement while he was having coitus and just before ejaculation. This he did and found that the organ measured nearly $4\frac{3}{4}$ inches. With great difficulty I convinced him that the size of his penis was satisfactory and that the defect in his erection was produced by the inferiority complex produced by the belief that his organ was infantile. I explained to him that by certain coital postures he could give sexual satisfaction to his partner.

III

CLASSIFICATION OF SEX DISORDERS AND METHODS OF - INVESTIGATION INTO THEIR CAUSATION

CLASSIFICATION OF MALE SEX DISORDERS

The sex disorders of the male are so complex that to classify them satisfactorily is very difficult. This is chiefly because of the two factors, *viz.*, no disorder is a clinical entity by itself as usually disorders of all the processes that make coitus satisfactory are present together, and secondly, the psychic element in most cases is so predominant as to make it difficult to classify them under any particular heading.

It is the usual practice to classify male sex disorders symptomatically, as disorders of libido, disorders of erection and disorders of ejaculation and orgasm; or aetiologically, as functional disorders, endocrine disorders and psychic disorders; or according to age groups, as disorders of adults, disorders of the middle-aged and disorders of the elderly. In my previous writings, I classified them symptomatically, but I found that this led to confusion and much repetition. I have therefore decided to describe them in this book broadly under the headings, hyperaesthetic disorders, anaesthetic disorders, sexual neurasthenia, and sterility.

Under hyperaesthetic disorders are described excessive libido, increased erections and erections on the slightest stimulation, urethrorrhoea, prostatorrhoea, spermatorrhoea, masturbation, nocturnal emissions and premature ejaculation. Under anaesthetic disorders are discussed defective or absent libido, defective or absent erection, delayed or absent ejaculation, sexual infantilism and hypogonadism. Perversions are also anaesthetic disorders and they make heterosexual relationship difficult or impossible, but the subject is not discussed

It may be mentioned at the outset, that the causes of all types of sex disorders are either psychic, endocrinal, functional or organic. There is some confusion as regards the terms functional and organic. Most authorities consider as organic only such gross conditions as absence of penis and so on, while hyperaesthetic conditions of the posterior urethra and prostate gland and such other factors are termed as functional

disorders. This differentiation is confusing and I propose to designate both organic and functional disorders as organic.

DIAGNOSIS OF SEX DISORDERS

The investigation into the causation of sex disorders is not easy and often the causation remains obscure in spite of every kind of examination even by a specialist. This may be one reason why these disorders are treated casually and unscientifically by the average physician. Though all sex disorders are collectively termed as impotence, it must be borne in mind that they are not one clinical condition but a group of disorders. This fact is forgotten by most doctors and by the patients. It is the usual practice for the patient to go to a doctor complaining of "impotence" and for the latter, without even enquiring what form it takes, writing out a prescription. This will explain why the majority of patients remain uncured.

It was mentioned that disorders, whether of libido, erection or ejaculation, are caused by endocrine, organic or psychic factors. Often more than one factor may cause the condition and the symptoms complained of, though similar, may be caused by different factors. Very often the condition is not a disease but only a problem simulating disease.

When a patient comes for treatment, first it should be ascertained what form it takes and its duration. The age of the patient should be noted. The history would indicate if the complaint is only a problem or really a disorder. If it is a disorder, which factor, organic, endocrine or psychic, is causing it should be ascertained, remembering that there would be some psychic symptoms in all types of disorders. The organic and endocrine factors could easily be excluded by a thorough examination and, if found necessary, laboratory investigation.

A thorough clinical examination would reveal gross local organic defects and constitutional disorders. The size of the penis, the general development of the sex organs and signs of sexual infantilism, hypogonadism, etc. should be noted. Next the prostate gland, the seminal vesicles and the posterior urethra should be palpated through the rectum to see whether they are tender, enlarged or infantile. Note also the tone of the sphincter muscles of the anus and bladder. The urine after prostatic massage should be examined for threads and deposits. It may be necessary, when the cause is obscure, to have a chemical and microscopic examination of the urine done to exclude

urinary calculi, diabetes, nephritis, gonorrhoea, and so on. If necessary, Wassermann tests of the blood and spinal fluid should be done to exclude syphilis and neuro-syphilis. This is of interest more in sterility than in impotence. Huhner and other urologists suggest also a urethroscopic examination. I have seldom found this necessary. Details of sexual excesses and so on should be ascertained.

If these examinations prove negative or inconclusive, it may be presumed that the disorder is caused by psychic factors. These resolve into fixations or inhibitions, which are many and varied and cannot be discovered by any known chemical, laboratory or other tests and hence diagnosis becomes difficult. One need not, however, be a psychiatrist or psycho-analyst to guess the factor causing the sexual weakness, as by patient and tactful questioning, this can be done in most cases.

The factors to be investigated in the past history are masturbation, nocturnal emissions, homosexual or heterosexual practices, prostitution, their frequency, at what age they were begun, the patient's mental reactions to these and allied factors. It is necessary to find out the actual details of the first auto-erotic, homosexual and heterosexual act, including a description of the first sexual partner and where and when it was carried out. Often some men contract a first love fixation which makes sex life with a different type of partner unsatisfactory or even impossible. The circumstances under which the first sex act of any kind was done should therefore be fully ascertained.

Details regarding the patient's family history, to be distinguished from marital history, have also to be ascertained. The points to be elucidated are the number of children, the religious atmosphere, economic condition and the discipline in the family, and whether the patient when young was particularly attached to any one in the family or a servant or a nurse. As regards marital history, the duration of the marriage, the number of children, whether the wife comes up in looks, figure, etc., to his sexual ideal, her temperament and her attitude and co-operativeness during coitus; whether the marriage was a love marriage or contracted for convenience or financial reasons, the frequency of coitus, and the patient's mental and physical reaction after coitus; also how the patient gets on with his in-laws, should be ascertained. He should be questioned as to whether his disorder is relative, that is to say, whether he is potent with one person or on one occasion and impotent with another or on

other occasions; also whether he is self-conscious as regards the size of his organs, afraid of venereal infection or impregnating the woman. A point that is essential for diagnosis, but which a married man will seldom admit, is his secret love for some one else. The patient's habit as regards alcohol, exercise and diet, his general temperament, occupation, and intellectuality should also be noted.

He should be questioned as to how he indulges in sex act, as often the patient and his wife may not know the correct technique or that preliminary love-play is essential for satisfactory and satisfying sex life. I have seen two women, after three and five years of marriage, with intact hymen and the sexual intercourse took place apparently in the vestibule of the vulva. A similar case was recently reported to me by a medical friend. This concerned an educated man, married many years and father of two children. He consulted my friend for "impotence". When asked to explain what this meant he said he was never able to effect penetration. On enquiring as to how he did the sex act, the patient said that the wife lay flat on her back with her thighs touching. It was obvious why he could not effect penetration. Such cases are more common than is supposed to be possible.

Neurasthenic factors and wrong notions as regards the harmfulness or sinfulness of the sex act should be investigated. From the cases described in the following pages, it will be seen why these investigations are necessary and how they help to arrive at the causative factor. In cases of psychic impotence, I find that at least three or four hours are required to arrive at a diagnosis. This I do in five or six interviews, lasting from half to one hour. Sufferers from sex disorders often do not tell the whole truth and occasionally even put off the investigator by giving vague and untrue answers. In cases caused by deep rooted psychic fixations and inhibitions, psycho-analysis may become necessary.

Dreams having Diagnostic Significance—The patient's dreams at times give a clue to the causative factor. The dreams very commonly described are one or other of the following :

- (1) The patient feels or sees that he is falling from a height or into a deep abyss.
- (2) The patient misses a train in spite of making frantic efforts to catch it.

- (3) The patient sits for an examination or enters the examination hall to take up an examination and finds that he is unprepared and feels sure that he will fail. Often he knows that he has already passed that particular examination.
- (4) The patient's sexual dreams are often important, whether it is heterosexual, homosexual, mutual masturbation and so on. A description of the partner and the actual act should be got from the patient. One of my patients used to dream often that he practised mutual masturbation with a chimpanzee.
- (5) The patient dreams again and again that one of his nearest relations or dearest friends is dead. It is significant that this relative or friend is usually not the one with whom he is (secretly) in love. His fixation can therefore be easily guessed. If the wife is nagging, non-co-operative in sex life or has ceased to attract the patient sexually, he would dream of her death but never admit it.

The interpretations I put on these dreams may be unorthodox and these are :

- (1) He is sinning against his wife by visiting prostitutes, keeping mistresses or thinking of doing either of these.
- (2) This dream shows unpreparedness or inability to achieve an ambition, in this case, to satisfy the partner.
- (3) This shows frustration signifying the same as above.
- (4) This illustrates the saying, "The wish is father to the thought," in other words, it gives the trend of his sex thoughts. The patient who dreamt of the chimpanzee was a well known pianist, married and father of one child. He was sexually weak in this sense, *viz.*, his coital time was not sufficient to satisfy his wife. He did not want any psychic treatment. My impression was that he was a relative homosexual with a leaning towards strong and virile (and hence hairy) men.
- (5) This dream is self-explanatory.

It is not suggested that the dreams by themselves are diagnostic, but I have not had a single person suffering from atonic or endocrine type of impotence who had such dreams. The history when read with the dreams should suggest that the dis-

order is psychic and its possible causative factor. Dreams (3) and (4) are commonly associated with psychic premature ejaculation. Nefzouri in his *Perfumed Garden* gives a good picture of an impotent man. He says: "He may like that one who, wishing to flee, cannot; who pursuing some one, never catches him; or who, when bearing a burden or otherwise working, is straightaway harassed and exhausted."

It may appear that the lines of investigation indicated are far too elaborate for the average medical man to undertake. The examinations and tests described are not necessary in most cases. Usually a physical and rectal examination and an intelligent study of the past and present history would be sufficient to arrive at a diagnosis. The doctor should appear sympathetic and never make light of the complaint or ridicule the patient. He should make the patient feel that he understands his case and inspire confidence. If this is done, treatment in psychic cases is easy. I often ask the patient, when the causation appears obscure, to write down his history, family, environmental and sexual, past and present. Many patients give more details when they write than when orally examined. This saves much time and makes the patient feel that the doctor is taking a real interest in his case.

In many cases, it may be necessary to discuss the condition of the patient with his wife, as she may be able to give valuable information which would help to arrive at the causative factor. The wife should be questioned separately. Some men would object to this, asserting that women know nothing of such matters. If the confidence of the patient has been secured and he is convinced that whatever passes between the doctor and him or his wife is confidential, he will willingly agree to having his wife questioned. The patient will often talk for hours on apparently irrelevant factors. He should be allowed to do so without interruption and occasionally, he may blurt out some vital fact which in his opinion is of no significance. The interrogation of the patient should then be undertaken and a shrewd investigator could detect which facts he was trying to suppress or hide from the patient's hesitation in answering some of the questions. The personality of the doctor counts a lot in making the patient open out his heart and speak frankly and freely.

The cases described under the various sex disorders are explanatory of why patient questioning is necessary to arrive at the psychic factors behind them. It may be that the inter-

pretation I give to them is not in conformity with that given by orthodox psycho-analysts. My aim is to guide the general practitioner in interrogating his patients and the method I described serves this purpose. A case illustrating how vague and unhelpful is the history the patient often tells is given below. In this case, the relevant factors were extracted by patient interrogation.

Case VI—A professional man, aged 38, consulted me for premature ejaculation. His libido was strong and erection good. He was married and had one child. He never had a satisfactory coitus in his life in or outside marriage, because invariably he ejaculated during or soon after intromission. On physical examination, he was perfectly normal, except for slight tenderness or rather hypersensitiveness of the prostate. He was asked to write out his history. The following are extracts from his written statement :

When he was about 4 years old, his parents died and his paternal uncle took his sister, brother and himself to live with him. After a few years, he was sent to school and was at home only for about 2 months in the year. He was fond of sports but not sociable. He liked being alone and roaming about in the jungles near his school. "When at home, I was happiest by myself, because I found that when by myself I could go where I liked, when I liked and do what I liked, without having anyone to offend. As a result I felt like a fish out of water when in company, even of my relations. I do not remember having any one particular friend, everybody was my friend.

"I knew nothing about masturbation till the age of 15 to 16, when I was initiated into it by a classmate. I do not remember how and why I started the practice myself, but once I started it, I found it hard to break off. I masturbated regularly once a month and sometimes oftener. At about the age of 19, I gave up the habit. Everytime I masturbated I felt quite ashamed of myself and thought the whole school knew of it.

"I began masturbation again at the age of 21, this time through listening to lewd stories from others. Sometimes while alone, bad thoughts crept into my mind. Even here, I felt very self-conscious. At about this time I began to hate women, as I thought they were liars and cats and felt like stripping them naked and whipping them. There were occasions when I had the desire for a caress and a few kisses from them.

"When I was working as an apprentice, I became friendly with two of my colleagues who often took me to their homes and their people treated me like a member of their family. These friends had attractive sisters, whom I worshipped as goddesses. I never touched them or made any advances to them.

"At the age of 26, I landed in London and stayed with my sister. One evening I went to the picture and there an attractive young woman sat next to me and began talking. Later she held my hand

tightly and put it over her bare parts, when I became frightened and felt helpless. I began to tremble and tried to take away my hand but this she would not allow and I felt I was glued to my seat. Soon after, she opened my trouser buttons and held my penis which was fully erect. I ejaculated immediately. I gave her some money and though she asked me to meet her in the vestibule, I never saw her again.

"About 3 months later, I became friendly with a girl, aged about 20, in a neighbouring village. She asked me to meet her one evening which I did. We started kissing and caressing through her initiative, and eventually I tried to have intercourse with her. Though I was about 27 at the time, I did not know how to do it. I could not effect intromission as we were both standing. We then sat down on the grass and she was on my lap facing me. I effected penetration and we sat like that a little while without making any movements. I did not ejaculate. Then we got up and went home. The process hurt me as I had phymosis. I felt humiliated because of my ignorance about sexual intercourse. I thought also that all my acquaintances knew of this affair.

"My next attempt at intercourse was with a prostitute in a taxi-cab when I ejaculated before intromission. The third was with a married woman aged about 24 years and quite attractive. She often invited me to her house and I used to give her presents of pieces of furniture. One evening while we were chatting, she put out the lights, lay on the sofa and asked me to have intercourse with her. Though I felt a bit afraid, I made an attempt but as usual I ejaculated soon after intromission. I had intercourse with her twice again on other occasions with the same result. Only once I was able to make a couple of movements before ejaculating. My inferiority complex now became worse and I decided to remain a bachelor, as I felt I would never be any good with women. Yet, I tried intercourse again half a dozen times with prostitutes, to relieve my pressing sex urge, also to see whether my potency was any better.

"Though coitus was always unsatisfactory, I got infected with gonorrhoea and was treated for it in one of the best hospitals in London and also operated on for phymosis. Even after this, I ejaculated when I kissed or caressed girls. This happened even with my wife while we were engaged.

"As regards intercourse with my wife, on almost all occasions I ejaculated after a couple of movements. Once or twice the coitus lasted a little longer when I forced myself to think of something else during the act. My wife never complained but just kept up the movements till she satisfied herself. On an average we had coitus once or twice a month. She was, if anything, even more innocent about sex than myself. A year after marriage she gave birth to a baby boy. The only dream I could remember, and which I dreamt more than once, was my falling from a great height and as I was about to touch the earth, I used to wake up."

This is a summary of the written statement of the patient. He honestly felt that he had given me all relevant factors regarding his sex life. When questioned as to whether he had any idea of the cause of his premature ejaculation, he said that it was probably due to his ignorance of the technique of love making. His auto-erotic and heterosexual practices were not immoderate and his phimosis was cured. For the real cause of his condition, deeper probing into his affairs was therefore necessary. During the interrogation it came out that somehow or other he felt that he was an unwanted guest at his uncle's house and that the daughter of his uncle looked down upon him with contempt as he was dependent on the charity of her father. Being sensitive and shy, he suppressed all his desires and longings and developed an inferiority complex. The suppression of natural desires, inferiority complex, and sense of humiliation moulded his character into that of a timid and non-aggressive boy, being reconciled to not getting anything he desired. Apparently he gave up desiring anything—frustration. Probably also his cousin carried tales about him to her parents. It was at about this time that he began to feel that all women should be stripped and whipped.

No one showed any affection for the sensitive and lonely child who craved for it ardently. When the people of his two friends showed him kindness, he reacted to it with gratitude. When he went to England, he had cut himself adrift from his uncle's influence and charity and was independent. Still he could not get over his inferiority complex. Moreover, he anticipated, from previous experience, punishment for all wrong actions and had the feeling that the whole world knew of his actions. So he ejaculated at every sex experience, which before marriage was always with prostitutes or friends and this was against his moral convictions. His libido was strong which made sex life necessary. Prostitution also meant fear of detection, some aggressiveness, etc. and hence his attempts at sex life were always unsuccessful. He was also quite ignorant of the technique of coitus.

His wife was equally ignorant of the niceties of the sex act and therefore satisfied with what she got, even at very long intervals, once or twice a month. In character, he was a fine type of a man, always truthful and noble in his actions, with a highly developed sense of duty and ever willing to help any one who asked him for it. He had a lucrative post and a good status,

yet he was not able to get over his inferiority complex. It has therefore to be assumed that his premature ejaculation was caused primarily by the repressions during the childhood. All these factors were made clear to him and it was almost pathetic to see his reactions when he realised that he was quite a potent man, as good as anyone else in every way. It was explained to him that his attempts at sexual intercourse with prostitutes would end in failure, as it was not only against his moral convictions but also because he was deeply in love with his wife. Due to the exigencies of the war, his wife and he were in different countries at the time he was under my treatment.

Here is another case :

Case VII—A businessman, aged 39, married and father of one child aged 12, complained that when he recently attempted coitus, the erection was feeble and it subsided before penetration without ejaculation. He attributed his condition to the excessive sex life he led from 1934 to 1940 with various women. From 1940 to 1942, he tried coitus only three times and on all the occasions, either he had no satisfactory erection or ejaculated soon after intromission.

The patient was a well-built man, 6 feet in height, and the penis on erection was $6\frac{1}{2}$ to $6\frac{3}{4}$ inches in length. On examination, there was some tenderness of the prostatic urethra and relaxation of the genital muscles. These were not marked enough to classify his condition as atonic impotence. He was unwilling to discuss his family history, but it came out that before his marriage he had intercourse with his fiancée. Though he practised coitus interruptus, she became pregnant and he had to marry her. The marriage did not turn out happy. Here I may remark that marriage under similar circumstances seldom turns out happy. His wife was now in an insane asylum.

He is in love with a girl whom he expects to marry when it becomes legally possible for him to do so. He had attempted coitus with her but he had no erection. I asked him whether he was taking any precautions against impregnating the girl as she was not his legal wife yet. He said so far he was expecting to depend on coitus interruptus. This probably was the psychic inhibition in this case. He had coitus interruptus with a girl formerly, she became pregnant and he had to marry her. The marriage turned out unhappy. Here was a repetition of the whole series of events again. He understood the trend of my deductions. His hyperaesthesia and atony were treated and, with the help of the sheath, he had a successful coitus with his girl friend before he left my treatment. His condition was caused probably by 75 per cent. psychic and 25 per cent. organic factors.

PART II

THE ROLE OF ENDOCRINES IN MALE SEX DISORDERS

IV THE ROLE OF ENDOCRINES IN MALE SEX DISORDERS

V THE ROLE OF ENDOCRINES IN MALE SEX DISORDERS— (*Continued*)—CRYPTORCHIDISM

IV

THE ROLE OF ENDOCRINES IN MALE SEX DISORDERS*

THE ENDOCRINES

The endocrine or ductless glands, as they were once called, control all the functions of the body. Those believed to influence the sex system are the testes, the anterior pituitary, the adrenals, the thyroid and the thymus and they act through their internal secretions, known as hormones, circulating in the blood. The literature regarding the possible and probable actions of these has grown so enormous as to be bewildering. As Frank says :

“No one except an active worker in the field of endocrinology can attempt to follow the enormous literature, physiologic, biochemical and clinical. Even the specialist must restrict himself to a single branch—in the present instance to the sex hormones. The general practitioner will be hopelessly bogged by the extent and scattering of the articles published which trench on advanced organic chemistry, minutiae of physiologic experimentation and interpretation of intricate assays. The conflicting, often uncritical, clinical reports eventually force him to rely on a hit or miss trial of therapy with ‘endocrine remedies’ of which he ignores the source and often the dosage.” In this Chapter an attempt is made to give a short resume of the actions of the various hormones in their relation to sex disorders and their therapeutic action.

THE TESTICULAR HORMONE

The endocrine glands directly concerned with sex system are the testes. Structurally, these consist of interstitial tissues which secrete the male hormone, (endocrine function), and the seminiferous tubules which produce the spermatozoa, (exocrine function).

It is now generally admitted that the male hormone brings on sexual maturity, the development of the accessory sex organs

* Many of the cases and most of the material in this Chapter first appeared in *The Indian Medical Gazette*, January 1943.

and the formation of the male characteristics. It establishes spermatogenesis and ejaculation, controls erection of the penis and erotizes the sex centre in the brain. Spermatogenesis is dependent on the presence of the male hormone, but it itself does not affect the production of the hormone or the development or formation of male characteristics. In other words, while a man deficient in male hormone will show sexual weakness and hypogonadism, a man having no sperms will be potent, though sterile.

The Physiological Actions of Testicular Hormone—The functions of the testicular hormone appear simple but it is not so, because of its action on the anterior pituitary gland. This gland secretes many hormones, one of which, the gonadotropic hormone, controls testicular function and, according to some, even initiates spermatogenesis. That the testicles and the anterior pituitary gland have a reciprocal action on each other is admitted by all endocrinologists, but how far and in which way are still moot points.

It is, however, generally believed that the male hormone inhibits the gonadotropic hormone secretion of the anterior pituitary which in turn causes depression of the functions of the testicular tissues, both endocrine and exocrine. The male hormone has thus two distinct actions, a direct stimulating action on the testicular tissues and an indirect depressing action on them through the anterior pituitary, really two antagonistic actions. Observers contradict one another as regards these two actions, some maintaining that the stimulating action is only on the seminiferous tubules, i.e., on spermatogenesis, and not on the interstitial tissues, i.e., on the production of the hormone. Others are of opinion that it depresses spermatogenesis, while it stimulates the Leydig cells to produce greater quantities of the male hormone.

Selye and Friedman's views on the actions of hormones in general may be taken as a guide for all practical purposes: "It also appears that these hormones (male and female) exert a direct gonadotropic action in males which is not mediated by the pituitary. All the known facts are best explained in accordance with the assumption that in addition to this direct stimulating action, the steroids also have the property of inhibiting the gonadotropic hormone secretion of the pituitary. At low dosage levels, this latter action prevails in as much as small doses of various steroids, particularly the androgens, decrease

gonadotropic secretion much more than can be compensated for by their direct testes stimulating effect. On the other hand, very large doses have a sufficiently pronounced direct stimulating action to compensate for the loss of pituitary gonadotropic hormone production. From this it would appear that if the hormonal mechanisms regulating testes function are the same in man as they are in rat and mouse, there would be less danger of damaging the testes of *hypogonadal* patients with large doses of androgens than with carefully administered small doses. In fact, it appears very probable that the large doses would stimulate gonadal development, or at least inhibit gonadal involution.

"It also seems likely that only the seminiferous epithelium is stimulated by large doses of androgens while the Leydig cells undergo atrophy irrespective of the dosage used. If we accept the prevailing view according to which these cells are the main source of androgen formation, this observation would be in conformity with the law of compensatory atrophy according to which overdosage with a certain hormone causes involution of the cells normally responsible for its elaboration. The fact that other steroid hormones, namely, esterone, desoxycorticosterone and progesterone, likewise result in Leydig cells atrophy, on the other hand, is an excellent example of the so-called involution of endocrine cells due to overdosage with a hormone other than that normally produced by them, though usually closely related to it."

The authors make some interesting observations based on their work on castrated rats. These are :

- (1) Testicular hormone depresses the gonadotropic secretion of the anterior pituitary.
- (2) The gonadotropic hormone stimulates the testicular tissues to greater activity.
- (3) Testicular hormone stimulates only the seminiferous tubules while it causes atrophy of the Leydig cells irrespective of the dosage used. In other words, its stimulating action is only by substitution and so the larger the dose, the greater this action.

Zelson and Steinitz are of opinion that "though the male hormone will produce an enlargement of the penis and scrotum and growth of public hair, it has a marked tendency to cause a shrinkage in the size of the testicles, both descended and undescended." The two statements quoted give the impression

that the male hormone causes damage to, if not actual atrophy of, at least a part of the testicular tissue. These observations are based on experiments on castrated rodents. The analogous cases in human beings are infantilism and hypogonadism. We have to decide whether the conclusions of these authors apply to these cases.

My experience does not corroborate Selye and Friedman's findings that Leydig cells undergo atrophy when androgens are administered in any dose. I admit that it cannot be proved or disproved whether Leydig cells undergo atrophy or not except by histological methods which is not possible in human beings. We can however form conclusions from the effect of the hormone on the sex functions. In men who are normal sexually, I have administered androgens and esterones in various doses. Large doses of hormones produce a depressional effect on libido and erection. This will have to be attributed to the depressional effect on the anterior pituitary. Small doses cause no adverse effect and some men even find increased libido and erection. From this, it is legitimate to conclude that small doses of androgens and esterones in *sexually* normal human beings have not only no depressing effect but exert even a stimulating effect on the Leydig cells. Even when large doses of the hormones are administered, the depression that follows disappears soon after the treatment is discontinued, which shows that no real damage has been caused to the Leydig cells.

In sexual infantilism, large doses alone are therapeutically effective as mentioned by Selye and Friedman. When the treatment is stopped, the improvement is kept up and there is no retrogression in the condition. It has therefore to be assumed that even in these cases the hormone does not produce any atrophy of the Leydig cells but it exerts a stimulating effect on them. In hypogonadism where substitution therapy is aimed at, as opposed to the stimulation therapy aimed at in sexual infantilism, small doses depending on the degree of deficiency are effective, while high doses act in the same way as in sexually normal individuals.

There is one indefinite factor and that is, it cannot be definitely proved whether the stimulating and depressing effects produced on the Leydig cells by androgens and esterones are by direct action or through the mediation of the anterior pituitary. Whatever this may be, it can be assumed that androgens and esterones do not harm the Leydig cells, at least in human

beings, in the doses ordinarily administered. This statement may appear contradictory to the generally accepted view that the hormone of any endocrine gland does not stimulate its own hormone production function. The only way to reconcile the two views is by assuming that in sexual infantilism the Leydig cells are infantile and these are brought to the adult stage by the hormone, while in hypogonadism the deficiency of the hormone is made good, the effective dosage depending on the degree of hypogonadism. There is no clinical evidence to indicate that any damage or atrophy of the Leydig cells is produced by the male hormone.

In considering high and low doses, we have to remember that these are relative terms and they depend on the proportion of the dose to the body-weight of the patient. The dosage considered high in rat and mouse, on whom most of the experiments have been so far carried out, cannot be high in man. It is this factor that gives rise to confused views and conflicting findings of different workers. The possibility of doses high in relation to the body weight causing atrophy of the gonads should however be borne in mind, as this has been noticed in rodents. The effects of androgens and esterones on spermatogenesis are described in the Chapter on Sterility.

The Therapeutic Action of Testicular Hormone—When we remember that the male hormone “establishes ejaculation, controls erection of the penis and erotizes the sex centre in the brain,” we can understand its role in sex functions and sexual disorders. The hormone also causes development of the accessory sex organs, viz., the prostate and seminal vesicles, and increase their secretion. How and why the male hormone benefits cases of decreased libido and erection and absent ejaculation are thus evident. Theoretically the hormone is ineffective in hyperaesthetic disorders and may even cause harm. It will be shown later that in these cases also, the hormone has its use.

The male hormone produces good results even in psychic cases of impotence, when not caused by deep-rooted factors. It increases directly the erotization of the sex centre in the brain and the erectile power, even though these may be paralyzed or depressed at the time by inhibitions or fixations. Then again, the male hormone increases the secretions of the accessory sex organs. Increased secretions of the accessory sex organs mean increased and more frequent distention of the seminal vesicles,

which reflexly increases libido and erectile power. It brings on also ejaculation in cases where this has been absent or delayed through psychic factors.

In sexual neurasthenia, small doses of the male hormone are helpful because of its sedative effect on the hypersensitive brain and nervous system. Guirdham recommends this line of treatment in non-sexual psycho-neurotic and early schizoid cases. The male hormone in addition exerts a tonic effect on the general health and growth, due to its reactions on the other endocrine glands. It may, therefore, be used along with other endocrine products in general infantilism and in asthenia seen in elderly persons.

The best results from the male hormone are seen in anaesthetic disorders. In hyperaesthetic states, theoretically speaking, it is possible to produce good results by high doses of the hormone through its depressing action on the anterior pituitary. This line of treatment would, however, not be justifiable. The male hormone in small doses is helpful in premature ejaculation and other hyperaesthetic sex disorders caused by hyperaesthesia of the posterior unretrea and adjacent areas, because it has a "desensitising" as well as a tonic effect on the genital musculature. That this is so is seen from the fact that it relieves the frequency of micturition associated with enlarged prostate. The male hormone is therefore helpful in all types of sex disorders, if the proper dosage is selected.

The Development of Testicular Hormone Therapy—The study of the development of hormone therapy is most fascinating and a short outline of it is given. Though hormones have been discovered only comparatively recently, ancient treatises on sex advocated the use of testicles of goats fried in ghee. This was empirical, but in 1780 Hunter discovered that transplantation of testicular tissue caused increase of sex power. In 1849, Berthold noticed that the implantation of cock's testes caused growth of the atropic capon-comb. The pioneer research worker in this field may be considered as Brown-Sequard who claimed to have rejuvenated himself physically and mentally by injections of testicular extracts. He was 72 years old at the time and by injecting himself with extracts of dog's testicles, he "experienced a remarkable increase of strength and endurance and of his mental capacity, as well as an equally, striking improvement in the functions of micturition and defaecation."

Other investigators failed to get the results claimed by Brown-Sequard and the subject remained neglected.

Early in the twentieth century, scientists in various parts of the world again took up the work of Hunter, Berthold and Brown-Sequard. In 1911 Steinach claimed that by his operation of vaso-ligature, senile testicles were stimulated to increase their production of hormone. "This method is based on the conception of blocking the 'external secretions' and thus concentrating the biological energy of the testicles on 'internal secretion'."

Based on these findings, many products prepared from the extracts of testicles of animals were put on the market. These are now known to be therapeutically worthless, because they "have practically no hormone action. Since the generative glands continually yield up their secretion to the blood stream and do not store it, thus only minute traces of hormone are present in the organs at any particular moment, *e.g.*, at the instance when they are separated from the animal's body prior to the commencement of extraction process." The instructive part of it is that many clinicians, including the author of this book, got results, even cures, from these worthless products! This proves that most cases of impotence were formerly diagnosed as caused by endocrine deficiency or organic factors and psychic factors were not considered at all. The patients would therefore have been benefitted by any line of treatment, if they had faith in it, as the following case illustrates.

Case VIII—A man, aged twenty-six, complained of feeble erections and his case was diagnosed as one of psychic impotence. He was given six injections of sterilised sesame oil every other day. It was explained to him during the treatment that the injections were of a highly specialised and expensive hormonal product. Complete cure was effected after six injections.

In 1929, it was discovered that in the urine of young men, comparatively large amounts of active male hormone were secreted. This made it possible to produce large quantities of a fairly potent hormone product. In 1931, Butenandt succeeded in producing from urine extracts a chemically pure male hormone which he called androsterone. In 1930, Gallagher and Koch devised a quantitative physiological test for the assay of male hormone, the capon-comb test, by which the physiological potency of male hormone products could be tested. This gave an impetus to further investigations. In 1935, Laqueur suc-

ceeded in isolating from urine extracts a more physiologically active hormone and this was termed testosterone. In 1934, Ruzieka and Butenandt succeeded, independently of each other, in preparing the same product synthetically from cholesterol. Thus large quantities of the hormone were available and this initiated scientific experiments on the subject on a vast scale.

"Of all the synthetic hormones, testosterone alone acts like the natural hormone. This fact seems to be important for future hormone therapy; for the aim of clinical treatment must be the use of those hormonal substances whose effects resemble most closely those of the natural sex hormone." This is the product which is being used at present and whenever the male hormone is mentioned in this book, it means testosterone, especially testosterone propionate.

THE ANTERIOR PITUITARY HORMONES

The anterior pituitary gland is the mystery gland of the body and controller-general of all its functions. It is credited to secrete many hormones but the ones that interest us here are only those that influence the sex functions. These are the gonadotropic hormones and believed to initiate and regulate to a certain extent the functioning of the gonads. This gland, as was mentioned, is in turn influenced by the gonads. While a certain amount of work has been done on the action of the pituitary hormone on spermatogenesis and cryptorchidism, very little of controlled clinical work has been published as regards its therapeutic value in impotence.

In the earlier year's of my practice I tried pituitary and pituitary-like hormones in cases of impotence and sexual infantilism without any appreciable result. Before reliable anterior pituitary-like products were available, I even tried injections of filtered urine of women in early stages of pregnancy in which large quantities of pituitary-like hormones are believed to be excreted. The protein shock produced by these injections was often great and so I had to give up this line of investigation. I do not now use anterior pituitary hormone in any type of sexual weakness. That I am not the only one who has come to this conclusion is seen from the following statement of Frank:

"Three different types of therapeutic agents must be considered. Gland substance itself, not available in sufficient quantity or concentration; concentrated serum of pregnant

mares, which is just becoming available in higher concentration, and the readily obtainable anterior pituitary-like factor derived from pregnant urine.

"The use of anterior pituitary-like gonadotropic factor in hypogonadism, over long periods of time, has been advocated by the majority of endocrinologists. The good results reported, in my opinion, are due to a misconception. The patients in this numerous group, which includes mainly boys between twelve and fifteen, obese, delicate-skinned, with poorly marked secondary sex characteristics, small phallus and gonads, in the large majority are suffering from a self-limited retardation. Fully 90 per cent. of these adolescents become normal without therapy but at an age later than that of the majority of normal boys. The therapy, if continued for several years is, therefore, credited with their improvement. In the older age groups no improvement is noted. McCahey, Hansen and Soloway noted no increase in excretion of male hormone in five cases of hypopituitary hypogonadism in which 200 rat units of this substance were given twice a week."

Whatever this may be, the pituitary hormone has a stimulating effect on the testicular tissues and so some clinicians are of opinion that an initial course of the pituitary-like hormone should precede the male hormone therapy in impotence. For this line of treatment to be effective, healthy testicular tissues should be present. In other words, the pituitary hormone cannot help in substitution therapy. Theoretically, it should be of value in sexual infantilism. It is believed that many castrates are able to indulge in sex life because of the vicarious action of the pituitary hormone which takes on the function of the absent male hormone. Whether adrenal cortex hormone cannot do likewise has not yet been studied. It is said that preparations from mare's serum are more effective than those prepared from the urine or the natural hormone.

We have to remember that all hormones are expensive and very few sufferers from sex disorders are able to spend large sums of money on a variety of these preparations. It also complicates and unnecessarily prolongs the treatment. In conclusion, I need only state that there is no need or justification for the use of pituitary hormone in impotence, now that therapeutically potent testicular hormone products are available.

ONE-SIDED PROPAGANDA BY MANUFACTURING FIRMS

It was mentioned that even to the specialist, the subject of hormones is vast and confusing. The general practitioner, however, generally depends on the literature issued on the subject by manufacturing chemists who deal in hormone products. These are highly scientific firms with recognised specialists on their staff and yet their literature is almost always one-sided. They circularise doctors that their products (and often their products alone) cure "impotence." Many of them forget that impotence is not a single clinical entity but a group of disorders and usually ignore psychic and functional factors in their causation. The general practitioner, therefore, prescribes hormones, testicular or anterior pituitary, unscientifically with no benefit to the patients. I have seen doctors prescribing high doses of the testicular hormone in premature ejaculation, due to the one-sided propaganda of firms specialising in this product. The case given below illustrates how medical men may be misguided.

Case IX—

A doctor writes :

"I shall be very thankful to you, if you will kindly let me know your expert advice for a case of functional impotence, the history of which I am giving below :

The patient is thirty-three years old and unmarried. He practised incomplete psychic masturbation (masturbation minus ejaculation) for about eleven or twelve years with the result that he became impotent. For this trouble, he consulted various physicians who advised him to take pluri-glandular preparations and other sexual tonics. The patient tried these preparations without any benefit and so consulted a sexologist, who told him that his trouble was due to congestion and inflammation of the prostate and posterior urethra, which required local palliative treatment first and stimulation treatment afterwards. So the local treatment was commenced, *viz.*, prostatic massage followed by silver nitrate instillation once a week. The doctor used to pass sound and dilator once a fortnight.

"After the completion of the local treatment, the patient was given six injections of Pasuma and twenty injections of Erugon; while the patient was having these injections he was asked to take anterior pituitary extract tablets by mouth. While under this treatment, the patient used to get unusually excited (sexually) at the sight of a beautiful woman, he might see in the street. After the completion of treatment, the patient was alright sexually for some time. But, since then, he has been getting sex stimulation alter-

rating with sex depression, sometimes with medicine, sometimes without a drop of medicine. When he gets sex stimulation, he gets involuntary emissions with erotic dreams and strong erections, but no erotic dreams or erections take place while he has sex depression. He has marked also that Ovaltine can stimulate him sexually. At present, his *libido sexualis* is absolutely diminished. I intend to give him first a course of anterior pituitary hormone injections for sometime and then some testicular hormone preparation. For his over-excitability, I mean to give some sedative tablets. Can you let me know as to the number of injections (approximately) of the pituitary hormone I shall have to give the patient? I have given you the detailed history of the case, and the treatment the patient has undergone for his trouble. I have also given you my future plan of treating the patient. You may, therefore, make any other suggestion to enable me to cure the patient completely."

A few days later, in reply to some queries from me, the doctor wrote as follows :

"I give below the additional information required by you. About his reaction to coitus, I must say that the patient unfortunately has not enjoyed (nor had he ever a chance to kiss even) any woman up till now. When he was sexually alright, he did not get any chance. (He did not go to prostitutes, as he was brought up in a very good atmosphere and besides, he was afraid of venereal diseases. If he became alright again, still he would not visit prostitutes for fear of venereal diseases. He will prefer marriage.) So the question of coitus is out of the question. He is quite tall, nearly 5 feet 8 inches, but lean. His weight is not proportionate to the height, it being something like 108 to 110 lbs. He is a nervous fellow. His general as well as his sexual development is quite normal. He has got abundant pubic hair, as well as on his chest and axillae, but has got a patch of baldness (premature alopecia) on his vertex, and a slight deficient growth of moustache—particularly in the centre, i.e., just below the nose, and this is one of the reasons of my giving him anterior pituitary hormone injections. His appetite is quite good. About his sleep, he has nothing to complain. He has got a tendency for constipation but now-a-days he gets satisfactory motions. At present, his libido is diminished and hence I am not giving him any sedative; but if he gets unusually excited at the sight of women, I would surely give it to him to diminish his over-excitability. If, in your opinion, sedatives are needed even when his libido is diminished, then clearly let me know as to that effect,

"I have already given above one of the reasons (deficient growth of moustache) as to why I intend to give him anterior pituitary hormone injections; but now I will give you the important reason of giving this treatment and that is this: Before seeking your advice, I had asked the advice of the Medical Scientific Department of a well-known firm of manufacturing chemists, (giving them the

same information as I gave you in my last letter) and from their reply, I may say that they are of opinion that anterior pituitary injections should be given first for some time (according to individual requirements) followed by testicular hormone treatment till the patient is cured."

The main point in the advice given by the firm referred to which, incidentally specialises only in gonadotropic hormone products, was :

"The treatment with the male sex hormone does not appear to us as stimulation therapy but substitution therapy in that it has substituted the hormone which has been deficient without treating the cause of that deficiency. Substitutional therapy may not produce any degree of permanent benefit as the deficiency remains when treatment is discontinued and hence stimulation therapy with anterior pituitary preparation, preferably by injections, would be more rational."

The diagnosis in this case is psychic impotence brought on by the fear that the *masturbatio interrupta* which he practised for eleven years has damaged his sexual system. It is more than probable that he had congestion of the prostate and posterior urethra. The history does not suggest any hormonal deficiency. The treatment he wanted was prostatic massage and instillation of silver-nitrate, (these he had already), absolute rest from all sexual excitement and probably a sedative tonic for his nerves. Above all he should have been assured that his auto-erotic practices had not permanently injured his sexual system. There was no need for any hormonal treatment and if any were needed, he should have been given testicular hormone 5 mg. combined with luteal hormone 2 to 5 mg. (*vide infra*). It is meaningless, therefore, to talk of substitution or stimulation therapy in this case.

The effects produced on him by the testicular hormone treatment he received were due to reflect stimulation from the increased secretions of the prostate and seminal vesicles brought on by the hormone and also due to its erotizing action on the sex centre in the brain. With the line of treatment suggested, however long it was continued, his impotency would have remained as it was. The patient had never tried coitus and so it was a primary mistake to have diagnosed his case as impotence. When the doctors agreed with his own diagnosis, the patient felt more convinced that he was really impotent.

THE ADRENAL CORTEX HORMONE

The adrenal cortex hormone is believed to help the foetus to develop along the line of maleness before the anterior pituitary is formed. The present accepted theory is that in the foetus of both sexes, the endocrines are formed in the following order : the adrenals, the anterior pituitary and the gonads. The study of the adrenal cortex hormone has been confined to two pathological conditions, Addison's disease and virilism in the female. Sexual weakness and sterility are usually, though not necessarily, associated with these conditions. All cases of females suffering from virilism that have come under my notice have been sterile, though libido and menstrual function in some of them were normal.

Virilism in the Male—I have not come across any reference in literature to cases of male virilism or hirsutism. By this I do not mean growth of hair on the chest and abdomen which is fairly common even in normally sexual individuals. As a matter of fact, there is a belief that such men are above the average in virility. What I mean is cases where men have dark and long hairs, often curly, all over the trunk and limbs *including the back and shoulders*. Seven such cases came under my notice and they were sexually weak. Five of them were married men and had not consummated marriage. Erection was feeble and the penis would not assume the forward position seen normally. This meant dysfunction or under-development of the erector penis muscles, one of the distinguishing characteristics of gonadal deficiency. Excess of the adrenal cortex hormone may possibly depress or even cause involution of the gonads, or at least of the Leydig cells. I had no opportunities of examining the semen of these patients for sperm count. A medical friend, however, assures me that he knows at least one case where a man suffering from virilism has many children. In my series of cases, coitus was possible in one case and in two cases, psychic inhibitions were discovered. In these two cases, the patients had fair erections but ejaculated whenever penetration was attempted. As usually only sexually weak men consult me, I cannot be definite whether all men suffering from virilism are sexually weak. The probability is that most of them are. Further controlled clinical studies on the subject are indicated.

Physiological Actions of Adrenal Cortex Hormone—The adrenal cortex hormone, when present in excessive quantities, has probably opposite effects in males and females, in the male

it acts as a female hormone and in the female as a male hormone.

"In normal development the adrenal cortex plays the part of a bisexual accessory sex gland which is active through life and that it secretes both androgenic and oestrogenic hormones under the control of the pituitary." Selye and Friedman noticed that desoxycorticosterone, the synthesized adrenal cortex hormone, in large doses produced smaller testes and marked tubular and interstitial atrophy, if treatment was kept up for a prolonged period. I have not seen any stimulating or depressing effect in cases of sex disorders treated with this hormone. It acts as a tonic on the nervous and bodily systems and thus corrects any sex weakness associated with cases of asthenia and mental exhaustion, thus exerting a certain amount of rejuvenating effect when administered in combination with the male hormone. This effect is most marked in elderly persons run down in health, after prolonged severe mental or physical strain. Six to twelve injections every second or third day are sufficient for the purpose. The beneficial effect of a course of treatment lasts from four to six months. I found that it decreased the craving for alcohol in two cases of confirmed dipsomaniacs. (See Cases XVII and XLI.)

V

THE ROLE OF ENDOCRINES IN MALE SEX DISORDERS

(continued)

OTHER ENDOCRINES

The other endocrines believed to influence the sex functions are the thymus and the thyroid. It is not proposed to discuss the actions of the thymus gland because its practical therapeutic importance is not clear and reliable preparations of its hormone are not available. That the thyroid has a close relation to the sex system is well-known. It is certainly of help in cases of infantilism, general as well as sexual. In cases of obesity, thyroid is distinctly helpful. I prescribe tablets of $\frac{1}{2}$ gr. of the dessicated product, one to be taken at bedtime for the first seven days and from the eighth day another tablet after mid-day meal also. If required the dose may be increased up to 1 gr. a dose. Some clinicians prescribe the interrupted treatment, i.e., $\frac{1}{2}$ gr. tablets for ten or fifteen days, then the treatment is stopped for a similar period and then restarted and so on. It is advisable to take the blood-pressure of the patient before treatment is begun and also during the course of it. If the blood-pressure rises above normal or the patient complains of headache, sleeplessness, rapid reduction in weight or palpitation, treatment should be stopped and restarted later with smaller doses.

THE FEMALE HORMONES

The only other hormones discussed and found by me to be therapeutically useful in male sex disorders are the two female hormones, the follicular and the luteal hormones. "To-day, it no longer suffices to regard the male as masculine and the female as feminine, since the two sexes have hormones of the opposite sex in their circulation and excretion. It is possible that most often they occur as inactive intermediate metabolic products but that under certain conditions they may disturb the balance of sex sufficiently to produce symptoms. Moreover, these hormones are not strictly specific, some of the androgens and adrenal extracts, for example, showing estrogenic and progestational activity."

Before discussing the therapeutic applications of the female sex hormones in male sex disorders, a few explanatory notes may be given about them. The true female hormone is the follicular hormone and it corresponds to the testicular hormone of the male. This hormone is produced by the follicles of the ovaries, from infancy onwards, immature though they may be at the time. Its function in early life is to develop the genitals and secondary sexual characteristics towards femaleness. At the time of puberty, certain changes take place in the pituitary gland which influence the ovary and a single follicle from it ripens, becomes distended and later bursts, liberating an ovum. After the escape of the ovum, the empty follicle becomes transformed into the corpus luteum which, 24 to 36 hours later, begins to secrete the luteal hormone. The function of this hormone is believed to be to prepare the endometrium of the uterus for the nidation of the fertilised ovum. If the ovum is not fertilised, it dies and the corpus luteum regresses and menstruation occurs. These changes are repeated in each menstrual cycle. If pregnancy occurs, the luteal hormone is essential for its continuance to full term. It is then secreted by the placenta.

Thus, while the luteal hormone is secreted only after puberty when the follicles begin to be transformed into the corpus luteum, the follicular hormone production is continuous from birth, by the follicles and later also by the corpus luteum and during pregnancy by the placenta. The secretion of the luteal hormone is also only cyclic unless there is pregnancy and it is dependent on the follicular hormone. It is non-existent in pre-pubertal life and after meno-pause, as no ova are produced during these periods.

These are believed to be the only important hormones produced by the ovary and they have a reciprocal action on the anterior pituitary gland, just in the same way as the testicular hormone. It is said that the action of the follicular hormone on the anterior pituitary is partly inhibitory and partly stimulating, while the action of the luteal hormone is only stimulating. The two hormones supplement the action of each other and in a castrate woman, menstruation can be reinduced by administering the follicular hormone followed by the luteal hormone. Both these products have recently been synthesised and are available under various trade names.

Treatment of Male Sex Disorders by Follicular Hormone—Korenchevsky and Dennison (1937) found that the follicular hormone "caused increase in the weight of the seminal vesicles, slight increase in the weight of the prostate, usually the penis showed no change, although there was slight increase in some cases." "Ball (1937) 'reactivated castrated male rats by the injection of estrogenic hormone . . .' These results suggest that in the adult male sexual activity may be due in part and possibly wholly, to reactivation of the pituitary which is accomplished by the estrogenic substance."

While studying the female hormones, I noticed that the follicular hormone, besides its other properties, exerted a direct action on the musculature of the uterus by inducing marked hyperaemia and powerful contractions. The luteal hormone had just the opposite effect. As the muscles of the female and male genital system are similar histologically and in function, I anticipated similar results with these hormones on the male genital muscles. I had not seen Ball's paper at the time. Clinical experiments with these hormones alone or combined with the male hormone were instituted in a number of cases. My deductions are :

The follicular hormone induces marked hyperaemia of the sex organs and sensitises them. In the genital muscles, besides the sensitising action, it induces peristalsis. The secretions of the accessory sex organs are increased and the whole sexual system is thus "sensitised" or fully "charged," to use an electrical expression. The result is stronger and more constant erections, increase in the quantity of semen which means constant nocturnal emissions, if not relieved by coitus or masturbation, early ejaculation during coitus and increased frequency of urination. The semen is often blood-stained. In other words, increased activity and sensitiveness of the sex organs are the result but these are of the irritative type. Increased libido is also noticed and this is caused solely by the reflex stimuli from the hypersensitive sex organs and distended seminal vesicles.

The testicular hormone produces similar results, but the action of the two hormones differs. The testicular hormone increases the physiological activity of the gonads, while the follicular hormone first sets up an irritative type of hyperactivity in the sex apparatus and then an increase in their

physiological activity. The former has not only no irritative action but has a soothing effect on irritative conditions of the sex apparatus.

The clinical applications of the follicular hormone are thus obvious, viz., in all anaesthetic conditions where the sex system is not functioning properly, as in atonic and psychic types of impotence. More rapid results are obtained with this than with the testicular hormone. The disorders which are benefitted are: absent or defective erection, ejaculation and libido. The effect is immediate and almost magical. When administered in combination with the male hormone, the secretions of the accessory sex organs are further increased but the irritative symptoms are less. Large doses of either of the hormones produce depression, through their inhibitory action on the anterior pituitary. In sexual infantilism and hypogonadism in adults, the combined treatment gives better and more rapid results, so also in cryptorchidism. I have not tried the follicular hormone alone in these cases. It is thus evident that the follicular hormone is indicated in all cases of sexual anaesthesia while it is contraindicated in hyperaesthetic conditions. The dose administered should be small and not exceed 1 mg. except in certain psychic conditions.

Its possible feminising effect is described later. Large doses or prolonged treatment with small doses of follicular hormone may, it is believed by some clinicians, cause enlargement of the prostate. In one case of feeble erection in a man aged 47, I gave twelve injections, each of testosterone proportionate 10 mg. and follicular hormone 1 mg. This effected a rapid cure without any noticeable prostatic enlargement.

*Treatment of Male Sex Disorders by Luteal Hormone—*The physiological actions of the luteal hormones are just the opposite of those of the follicular hormone, viz., it relieves hyperaemia and decreases peristalsis of the genital muscles and thus "desensitises" the sex system. It also inhibits or decreases the secretions of the accessory sex organs. It is, therefore, indicated in all sexual hyperaesthetic conditions, such as, increased libido and erections, premature ejaculation, nocturnal emissions, urethrorrhoea, spermatorrhoea and prostatorrhoea. Its action is not only desensitising but also soothing on the genital and bladder musculature. Whether it directly affects the sex centre or whether the depressed libido noticed while it

is administered is due to lack of stimuli from the anaesthesia in the sex organs it produces is not known. It was mentioned that unlike the follicular and testicular hormones, the luteal hormone has no depressing effect on the anterior pituitary gland. The decreased libido and erections should, therefore, be by direct action on the sex centre or through the anaesthesia it produces in the sex organs.

Small doses of the testicular hormone also produce soothing and toning up of the genital musculature in hyperaesthetic conditions, but not anaesthesia like the luteal hormone. The soothing effect is, however, more pronounced in the case of the luteal hormone. In atonic types of impotence when the genital muscles have lost their tone, the luteal hormone alone or combined with *small* doses of the testicular hormone helps because of its tonic effect.

I have not seen described the therapeutic value of luteal hormone in male sex disorders, but I find it acts almost as a specific in all hyperaesthetic conditions. It dispenses with the necessity for prostatic massage, instillations in the posterior urethra and sedatives. The luteal hormone is very helpful in sexual neurasthenia of the excitatory type, while the male hormone is indicated in cases of the depressional type.

While I was carrying on this line of investigation, I came across an article by Foss on his clinical experiments with male and female hormones in restoring the potency of a human male castrate, which showed that I was not wrong in my deductions. Foss writes :

"When testosterone was used in conjunction with small doses of oestradiol benzoate some increased efficiency was obtained, for a slightly lower threshold value of male hormone was active and emission was noted for the first time. As androgen therapy in one form or other was continued, the volume of these emissions increased; with only medium doses such as 40 mg. per week, full erections were not possible, but when 100 mg. of testosterone was given in a week in conjunction with small doses of oestradioil benzoate erection was fully turgid. Progesterone enhanced the action of the male hormone and also one injection lasted nearly six days, while even progesterone alone in sufficient doses maintained potency, but the effect was not prolonged. More recently, I have given larger doses of progesterone, 25 mg. daily, but with little effect."

The absence of beneficial effects with high doses of the luteal hormone is understandable because of its desensitising effect on the sex system. The point raised by Foss that the luteal hormone alone in sufficient doses maintained potency in castrates is very interesting, but unfortunately, I have not been able to verify this fact. Foss also indicates that when two or more hormones are combined, a lower dosage of the male hormone is sufficient to produce the desired results is of much practical importance. That it is so I have confirmed in my clinical work. Also, the interval between the injections can be increased as the effect of the combined treatment is more prolonged. These two factors reduce the cost of the treatment considerably. As regards dosage, when used alone 5 to 10 mg. should be administered by injection and when combined with testicular hormone it need be only 2 to 5 mg. The dose of the testicular hormone need not exceed 5 mg. for each injection.

A Possible Endocrine Theory for Premature Ejaculation— Here I may be permitted to ventilate a possible endocrine theory for premature ejaculation. Premature ejaculation is believed to be caused only by organic or psychic factors and not by endocrine. Premature ejaculation is the result of an irritation of the sex organs or centres and this can be produced by administering the female hormone in proper doses. This assumption is strengthened when we remember that in cases of enlarged prostate, premature ejaculation is the usual rule and one of the causes of senile hypertrophic changes in the prostate is believed to be the preponderance in the system of the female hormone and deficiency of the male hormone, necessarily associated with advancing age. Luteal hormone, physiologically antagonistic to follicular hormone, relieves irritative types of premature ejaculation and so also small doses of the male hormone. All these factors make it legitimate to speculate whether an excess of the follicular hormone in the body cannot be a cause of premature ejaculation. This theory, if accepted, may explain cases of premature ejaculation in the middle-aged and elderly persons, but what about cases occurring in adults? I am convinced that in the latter, the cause when not due to organic hyperaesthesia of the sex organs or centres is always psychic, unless we assume that due to some cause, at present not understood, a physiological preponderance of the female hormone occurs in the system at the time. It is worthwhile to pursue this possible cause of premature ejaculation

by estimating the relative excretion of the various hormones in the urine by quantitative laboratory tests and so on.

The Feminising Action of Female Hormones in the Male—
In a few, but not all, men treated with a combination of the follicular and testicular hormones, were noticed a distinct enlargement and tenderness of the nipples. One patient reported that there was some increase in the size of his breasts. I do not use follicular hormone in males in doses higher than 1 mg. when prolonged treatment is required and these changes are noticed usually after about 10 or 15 mg. have been administered. In cases of sexual infantilism or hypogonadism, no feminising action has been noticed. The dose of the testicular hormone used in conjunction with the follicular hormone is usually 5 mg., i.e., 5 times the dose of the follicular hormone. As it is not advisable to increase the dose of the testicular hormone to more than 10 mg., for reasons explained, the only way to avoid the changes in the nipples and breasts is to reduce the dose of the follicular hormone to about one-twentieth of that of the testicular hormone. In other words, with testicular hormone 5 and 10 mg. doses, the follicular hormone should be 0.25 and 0.5 mg. respectively. I have noticed no other feminising changes in the male with the follicular hormone. It is interesting to note that the increase in size and tenderness in the breasts of women treated with 5 mg. of testicular hormone and 1 mg. of follicular hormone are more marked than when higher doses of the follicular hormone alone are administered. This makes it possible to assume that in under-developed breasts of women, the combined treatment is more effective.

No feminising effect even after high doses of the luteal hormone given over prolonged periods has been noticed in men. Nor has this or the follicular hormone in my hands increased the size of the prostate even in elderly men or caused changes in the hair distribution of the face and/or other parts of the body. Decreased libido and decreased erections are, however, noticed just as when high doses of the testicular hormone are administered, due to the inhibiting action on the gonadotropic hormone secretion of the anterior pituitary. Illustrative cases showing the action of the various hormones are given. I have to acknowledge that in the initial stages of my research work, many medical and other friends, who were perfectly normal sexually, allowed themselves to be experimented with injections of various combinations of the hormones. These persons,

even when they were doctors, were not told what hormones were used or the results that might be expected from them. Some of the men who complained of sex disorders were also given different combinations of hormones, merely to test their physiological effects.

Case X—Medical man, aged 30, and wife 24, married five years and father of three children, consulted me for feeble erection and poor retentive power. Libido was normal. He had similar trouble four years back.

Four injections of luteal hormone, 5 mg., were given on alternate days. He reported slight improvement. This was followed by three injections of luteal hormone, 10 mg. The condition became worse, even libido was less. He tried coitus on my suggestion without success. Three injections of follicular hormone, 1 mg., 5 mg., and 5 mg. respectively, were then given on alternate days. Erection was definitely better and coitus possible but retentive power poor. Two injections of testicular hormone, 25 mg., were given on consecutive days. Erection was so feeble that intromission was not possible. Eight injections of testicular hormone, 10 mg., and follicular hormone, 1 mg., were then given on alternate days. He reported that he was practically normal as regards erection but retention power was still unsatisfactory.

The retention power could have been brought to a satisfactory level if a few injections of luteal hormone, 2 mg., or 5 mg., and testicular hormone, 10 mg., or 5 mg., were given after the erectile power was restored to normal.

Case XI—Patient aged 26, married three months, physically healthy but of neurotic temperament. Sex and accessory organs normal. During the first three days after marriage, he had no erection and so coitus was not possible. On the fourth night, there was a fair erection but he ejaculated on attempting penetration. Before marriage he had coitus with two women successfully. Diagnosis: psychic impotence.

Four injections of testicular hormone, 25 mg. were given on alternate days. He reported that there was no improvement and coitus was not possible. Injections of testicular hormone, 25 mg., and follicular hormone, 5 mg., were given on three consecutive days. He had very strong erections on the night he had the last injection when he had three coitions. The same treatment was continued the next three days. The condition relapsed with no erection, though libido continued strong. A few days later, the patient gave up treatment.

This case illustrates that sometimes psychic factors are too deep-rooted to be eradicated by hormone treatment.

Case XII—Patient aged 29, married six years, no children. No coitus for the last six months because of feeble erection. "Semen dribbles out on sexual excitement." Parts and accessory organs

normal, except tenderness and hyperaesthesia of the posterior urethra and the prostate. Diagnosis: paralytic impotence due to excessive venery.

Four injections of follicular hormone, 1 mg., were given on alternate days. On the seventh night, he had fairly satisfactory erection and had intercourse twice but coital time was short. Three injections of luteal hormone, 5 mg., 2 mg. and 10 mg., were then given on alternate days. The condition became worse with no erection whatever. Follicular hormone, 1 mg. and testicular hormone, 10 mg., were then injected on alternate days, seven times. Erectile power was almost normal, coitus was possible every night, some nights even twice, and coital time fair.

The patient was now prescribed by mouth follicular hormone, 1.0 mg. tablets, one t.d.s., and testicular hormone ointment for application through the rectum. He reported a month later that his sexual power continued to be satisfactory. In this case, the right procedure would have been to give to begin with, luteal hormone alone and then luteal hormone and small doses of testicular hormone. After the hyperaesthesia had disappeared and the genital muscles toned up, testicular hormone with or without follicular hormone should have been given. The patient was too impatient to undergo this prolonged treatment.

Case XIII—Patient aged 23, unmarried, complained of prostaticorrhoea. Parts normal. Three injections of luteal hormone, 5 mg., 10 mg., and 10 mg., every third day. Result: complete cure.

Case XIV—Patient aged 25, unmarried, complained of nocturnal emissions, three or four times a week. Treatment as in previous case. After the third injection, the treatment was stopped and he had no emission for seven days. A curious factor noticed was that while he was having treatment, he had emissions every night.

Case XV—Two cases of cryptorchidism were selected for treatment, one with gonadotropic hormone and the other with the testicular and follicular hormones. The first case was that of a man aged 26. He was given 500 rat units of the gonadotropic hormone, thrice weekly for six weeks with no appreciable result. An interesting observation was that on the commencement of the treatment, his sperm count was 220,000,000 per cc. and ten days after the cessation of treatment it was 153,300,000 per cc. That those who suffer from cryptorchidism have a low sperm count is thus not substantiated, at least in this case.

The other case was that of a man aged 34 years, rather obese, and married twelve years, who complained of sterility. Poor erections were noticed for the past two years. Right testicle was undescended and could be palpated in the abdomen with difficulty. Left testicle was atrophied, as a result of an injury sustained eighteen years previously. Hair growth was of a mild type of male virilism. He had coitus once a week. The atrophied testicle was of the size of a tamarind seed. He was treated with injections of

testicular and follicular hormones from 16-12-40 to 16-5-41. In all he received 1,290 mg. of the former in 100 injections. To 58 of these injections was added 1 mg each of the follicular hormone.

From the tenth injection, his erectile power and libido were increased and he indulged in coitus every other day. He used to get severe bearing down pain over the undescended testicle which he thought was being pushed downwards. After the eleventh injection, the testicle could be easily palpated and would have descended into the scrotum, if the internal abdominal ring was large enough. From about this time, his erections became feeble and libido less, obviously due to the depressing effect of the hormones on the anterior pituitary. The patient would not consent to an operation and as no further benefit would result from the treatment, the injections were discontinued. It was reported by the patient's doctor that the atrophied testicle reacted to the treatment in a peculiar manner, *viz.*, it swelled up occasionally to the size of a small marble.

Case XVI—Patient, aged 54, was impotent with wife because of her obesity. As a matter of fact, he did not attempt coitus with her. He was fairly potent with his mistress, lean and 21 years of age. His complaint was that he felt nervous during coitus, when his erection subsided without ejaculation. Staying power was fairly good. Diagnosis: psychic impotence with a large measure of hypogonadism.

Five injections of luteal hormone were given on alternate days. His nervousness was better and at times erection satisfactory and coitus satisfying and fairly prolonged. Four injections of 10 mg. of luteal hormone were then given on alternate days. There was marked improvement and the post-coital weakness, which he used to complain of, disappeared. Ten injections of testicular hormone, 10 mg., and luteal hormone, 2 mg., were then given in the next twenty-five days. Erection was very much better than before, but nervousness, if anything, was more marked. On the whole, however, he felt satisfied with his condition.

The improvement was kept up only about three months. In this case, if the dose of the luteal hormone when administered with the testicular hormone was higher, the result as far as nervousness was concerned would have been better. It is interesting to note that in this case, there was no decrease of libido even with large doses of the luteal hormone.

Case XVII—Patient, aged 53, alcoholic, married, and had four children. Wife was in England. He felt that he was older than his age and that he was "no good with women." Blood-pressure was 140/98, but otherwise he was healthy.

Seven injections of adrenal cortex hormone, 5 mg., were given on alternate days. He had nocturnal emission on the first night, rather unusual for him. On the 8th day, his blood-pressure was 130/86. He was then given three injections of adrenal cortex hormone, 5 mg., along with 10 mg. of testicular hormone and he felt more lively for 3 or 4 hours after each injection. There was increase

in libido and he slept better. No heavy head in the mornings as he used to have before the treatment was started. Next, two injections of testicular hormone, 10 mg., each were given on alternate days, followed by three injections of testicular hormone, 10 mg., and follicular hormone, 1 mg. He had powerful erections in the morning and the blood-pressure was 126/82. He felt "different in his attitude to women" and had been drinking progressively less for the last 10 days. Two more injections of adrenal cortex hormone, 5 mg. and testicular hormone, 5 mg., were given on alternate days. He felt lighter, active and a sense of general well-being, but there was slight breathlessness when he walked fast. He was now given two injections of luteal hormone, 10 mg. The blood-pressure was 128/84 but there was no morning erections. Next, injections of luteal hormone, 2 mg., and adrenal cortex hormone, 5 mg., were given on 3 consecutive days. General health, if anything, was better but there were no erections in the morning. A few days later, he was given one injection of testicular hormone, 15 mg. The next morning, there was a slight erection. The injections were now discontinued.

This man was not ill nor did he want any treatment but submitted cheerfully to the experiment, not enquiring even what injections he was getting. He felt better physically, mentally and sexually, when he was on adrenal cortex hormone, 5 mg. and testicular hormone, 10 mg. Coitus could not be tried as his wife was away from him. The most interesting feature in this case was that the craving for alcohol decreased and he was able to reduce, without effort, the quantity of whisky he took every evening from 6 to 8 pegs to 2 to 3 drinks, a rather unique occurrence in his life. His blood-pressure picture was also instructive. The beneficial results of the treatment lasted only about three to four months.

TOTAL TESTICULAR EXTRACTS

By this term is meant not only the products which were formerly prepared from the testicles of animals but also their synthesised equivalents. It is claimed that these products are helpful in hypogonadal and certain other types of sexual disorders and also in sexual neurasthenia, as a preliminary or supplementary measure to treatment with testicular hormone. I used to use these products some years ago, but have now discontinued their use. Some doctors, however, claim good results from these products. The therapeutic action of these products is described thus :

"Whether testosterone, oestradiol, and progesterone constitute the only hormones secreted by the gonads is a question which has not yet been satisfactorily resolved. There are reasons for believing that the actions of extracts of the testes and ovary

cannot be wholly accounted for by their content of known sex hormones. According to Walker (1937), many authorities believed that the cells of the seminiferous tubules furnish an internal as well as an external secretion. McCullagh and Walsh (1935) definitely postulate a second internal secretion of the testis, one of the functions of which is to inhibit pituitary activity, and they have accordingly given the name "inhibin" to this principle which has as yet not been isolated. Cheetham and Zwarenstein (1938), studying the effects of the gonads on protein metabolism, found that lipoid extracts and saline suspensions of testis tissue acted in a different manner, and they suggest on this ground that the testis may contain two active principles.

"Water-soluble extracts of the ovary cause increased motility of the intestine and uterus and provoke hyperaemia of the genitalia, and the water-soluble ovarian extract is, in fact, standardised by its action on the isolated intestine. The use of a lipo-soluble ovarian extract in addition to treatment with the most concentrated oestrogen preparations is recommended by Kursrok (1937).

"On these grounds, and in view of the many hundreds of favourable clinical reports which have been published, the introduction of new hormone preparations of high potency would seem to constitute no adequate reason against the continued use of water-soluble and lipo-soluble extracts, particularly as a preliminary or supplementary measure."

The more reliable products of the total testicular tissue come in packings of water-soluble and lipo-soluble extracts. These are recommended to be used by injection on alternate days. It is now believed that total testicular extracts are inactive when administered orally.

STILBOESTROL

Before leaving this subject, a word might be said of the synthetic oestrogenic substance, stilboestrol or dihydroxy-A: B-deithystilbene. This substance has been proved to have all the physiological actions of follicular hormone and widely prescribed in female functional disorders because of its cheapness. It can be used orally in men in place of follicular hormone, but it occasionally upsets the digestive system. My experience of this product in the treatment of male sex disorders is limited.

ADMINISTRATION OF HORMONES

Hormones can be administered orally, by injections, innunction, intrarectal application or by implantation under the skin. Oral products are available of thyroid, follicular and luteal hormones, but those of testicular hormone are not yet available in this country. No dependable oral products are available of the adrenal cortex or anterior pituitary or anterior pituitary-like hormones. Oral therapy is convenient but, except in the case of the thyroid, it is not as effective as injection treatment. Then again, the dose of hormones when administered orally is five to six times that when administered by injection. For instance, if 10 mg. of the testicular hormone is the dose required by injection, the dose when administered orally should be 50 to 60 mg. This naturally increases the cost of the treatment. I do not prescribe hormones orally for male sex disorders, except thyroid products.

The most convenient method of administration is by intramuscular injections. If more than one hormone is used, I mix them together and inject. I was told that some other clinicians inject them separately, the same day or on alternate days. This is possibly because of the fear of some chemical incompatibility. I do not think that this is likely, because most of the hormones have nearly the same chemical formulae. The anterior pituitary hormone cannot be mixed with other hormones, as the former is available only in watery solutions and the latter in oily solutions.

Testicular and follicular hormones are available in ointment form, meant to be rubbed on the skin of the penis or other parts of the body. As the action is by absorption, there is no particular merit in applying it on the penis. The method is messy and absorption slow and I prescribe instead, its application per rectum. The available ointment tubes have no rectal nozzles attached to them. Rectal nozzles, those like the ones packed with haemorrhoidal ointments, are available in the market. The advantages of rectal application are that the absorption is greater and quicker and the method is not messy. In substitution therapy and in cases of infantilism in children alone do I prescribe this mode of therapy. The rectal application may be made just before retiring and (or) after the bowels move in the morning. For skin innunction, it is recommended that the parts should be prepared by washing with hot water and then drying.

The implantation method was introduced by Deanesly and Parkes in 1937. The technique of implantation is: the tablets are made without excipient by compressing crystalline material in a hand tablet-making machine to about 4 mm. in diameter and 1 to 3 mm. thick. They may be made larger if required. The implantation may be done anywhere in the body, though best beneath the sheath of the rectus abdominis muscle. This method is believed to be more effective and one implantation to be enough for six to twelve months.

A question that is commonly asked is whether the treatment by hormone is permanent or only temporary. In infantilism and neurasthenia, the result is permanent. In psychic cases, when not due to deep-rooted fixations or inhibitions, the result is often permanent, though not always. In hypogonadism and in other cases where substitution therapy is aimed at, the treatment will have to be more or less continuous. What I advise is for the treatment to be kept up for two or three months and then to stop it for a month or so or till the signs of the original disorder manifest themselves, when it is restarted. Large doses of the testicular hormone increase the blood-pressure and cause often procardial pain, transient flushes and swelling of the ankles. According to Steinach and Kun, the addition of the follicular hormone will not cause increase in blood-pressure. I have not seen, as was mentioned, any masculinizing effect on women with the male hormones or any feminizing effect on men with female hormones with the dosages usually used, except the breast symptoms described. Depressional effect on libido is brought on by large quantities of any of the hormones. The therapeutic use of hormones in sterility is discussed in another chapter.

CONCLUSION

This chapter, as it stands, may give the reader an impression that the hormones are panacea for all sex disorders. It is not meant to be so, because I have had many cases that would not react to hormones or to any other line of treatment; also some types of sex disorders may react equally well with urological (local) treatment or with psychic treatment. All that is meant is to give the reader some guidance as to the clinical action of the various hormones and their doses in the different types of sex disorders. As other lines of treatment are also discussed in the book, the doctor will be able to select that which he

can conveniently undertake and would suit each individual case.

I shall end this chapter in the words of Frank: "The tendency to consider every obscure condition endocrine in origin is now the fashion. This tendency is so great that frequently no attempt is made to exclude non-endocrine disturbances; for example, in gynaecology the disregard of fibromyomas of the uterus, incomplete abortion and even gestation as causes of bleeding. I have twice encountered patients who have received courses of estrogenic treatment although they had no vaginas and minute solid rudimentary uteri, the anatomic cause of their amenorrhoea never having been investigated or suspected. Similarly, I have seen unmarried amenorrhoeic patients treated with estrogens and thyroid extract for amenorrhoea due to pregnancy, no physical examination having been performed.

"In evaluating the results of therapy, one should take care likewise to exclude accidental or coincidental results, which are not uncommon. I have now ten patients in whom amenorrhoea has persisted from two to seven years, who within four weeks of my first seeing them and without any therapy spontaneously menstruated. I have records also of a number of patients who conceived although amenorrhoeic for many years. I have been annoyed repeatedly during the hormonal study of patients with long continued menorrhagia or metrorrhagia to have their cycle become normal and continue normally without medication having been given.

"I must also warn against accepting with too much credence the reports of those authors who each year publish reports of wonderful results in the treatment of functional disturbances and the year following describe similar therapeutic triumphs with an entirely new remedy for the same disturbance. It requires little knowledge of the history of medicine to recollect the glowing reports of success by means of endocrine remedies which today are known to contain no active substances,"

PART III

HYPERAESTHETIC DISORDERS OF SEX

VI HYPERAESTHETIC DISORDERS

VII HYPERAESTHETIC DISORDERS—(*Continued*)

VIII HYPERAESTHETIC DISORDERS—(*Continued*)

IX TREATMENT OF HYPERAESTHETIC DISORDERS

VI

HYPERAESTHETIC DISORDERS

EXCESSIVE OR INCREASED LIBIDO

The more important of hyperaesthetic sexual disorders are excessive libido, continuous or embarrassingly constant erections and premature ejaculation. Like other disorders of the sex function, these may be caused by organic, endocrine or psychic factors. Often the conditions are merely problems and not disorders. In Chapter II is explained how to distinguish the one from the other.

Satyriasis—Before describing the commoner conditions of excessive libido, a rare but distinctly pathological condition may be mentioned and that is satyriasis. The aetiology of the condition is still shrouded in mystery. Sometimes, non-pathological increased libido may resemble satyriasis. The former will, however, be relieved by normal sexual intercourse, while the latter will not.

“Opinion is divided among those who have studied this condition, as to whether it is a disease *per se* or only a symptom of some form of psychosis. Thus Parke says that both satyriasis and nymphomania are more frequently symptomatic of the graver psychosis dependent on derangement of cerebral and spinal functions. On the other hand, Wulffen considers it a pathological condition of sexual hyperaesthesia. According to him, both satyriasis and nymphomania are not sexual perversions, but simple pathological states. The pathological seat, in his opinion, is to be found in the genitals themselves and the disease is neither hereditary nor are those afflicted degenerates. Krafft-Ebing considers it a state of physical hyperaesthesia, with a powerful participation of the sexual spheres.”

This much is certain that satyriasis “often accompanies severe forms of psychosis, and is found in connection with, and forms part of, some forms of insanity.” I am inclined to agree with this view and think that the condition is incurable. Fortunately the condition is very rare.

Max Hunher and other urologists think that most cases of satyriasis are caused by the enlargement and congestion of the verumontanum and the treatment suggested is “direct

application of very strong silver nitrate solution to the parts through the Wossidlo-Goldsmith posterior urethroscope." Psychologists, believing the cause to be psychic, suggest hypnotic treatment, but I doubt very much whether such cases are amenable to hypnosis in the acute stage. Some relief may be expected from injections of strong doses of morphia and, as some authorities suggest, by inducing deep anaesthesia by chloroform or ether.

Cases of other types of excessive libido may resemble very closely satyriasis. Then their duration is short and, as mentioned, they are relieved by one or more sexual intercourses.

Priapism—Satyriasis is associated with, and often accompanies, priapism. This condition may, therefore, be described here. By priapism is meant a persistent erection of the penis, often of sudden onset, unaccompanied by sexual desire and usually painful. I have not come across a single case of real priapism. The causes of the condition are various. It may be due to nervous causes or local causes. Some drugs, like cantharides, set up a persistent and even painful erection of the penis. This type of priapism is curable. An illustrative case narrated to me by a patient is given.

Case XIII—A barrister, aged about 55, whose one and only ambition in life was to have coitus as often and with as many women (especially girls) as possible, approached an Ayurvedic physician for a sexual tonic which would give him the physical ability to achieve his ambition. He was given a mixture to be taken three times a day. The third dose was taken at about 7 p.m. and soon after he got an erection which increased in intensity and became very painful. He had two or three intercourses with his wife, but that did not bring down the erection. He was unable to pass water as the organ continued to be stiff. This intensified his agony. At about 2 or 3 a.m., he informed the Ayurvedic physician of his agonising condition and he sent him some antidote. An hour later, he passed water and the erection subsided. Probably the drug given was cantharides. This case shows how inadvisable it is to take powerful drugs from unscientific "doctors."

Real cases of priapism are rare. Taylor's classic description of priapism as quoted by Max Huhner is given: "In its most severe form the organ became enlarged, tense, and comparable to a cartilage in rigidity, and the seat of severe pain. The glans may be double in size, much distended, and glistening, as if it would burst. The corpora cavernosa are very dense and unyielding to pressure in their whole length, including their

crura. The corpus spongiosum is likewise hard and swollen, and its bulbous expansion is in a similar condition. In some cases the perineal muscles can be felt as dense fibrous bands, and the dorsal vein of the penis seems much distended and feels like a whipcord. In many of these cases attentive examination reveals very painful spots or perhaps nodules in the corpora cavernosa particularly toward their root or in the crura. Then again, digital pressure on the bulb and over the perineal muscles may cause an agony of pain. Spasm of the cremaster muscles may be present, and the testes then are drawn forcibly up to the internal ring. Redness and swelling of the prepuce may be observed as complications. As a rule the integument of the penis retains its normal colour.

"In this pronounced condition the sufferings of the patient are very severe, and many authors apply the term atrocious to the pain which is seated in the virile organ. The patients fear the least touch of their linen or of the bedclothes, and jarring of the bed or heavy steps in the room cause them agonizing suffering. They draw up their legs on the abdomen in order to protect the penis from the slightest touch. This organ may lie rigid against the abdomen, or it may be more or less erect and at right angle with the body in the horizontal position. Very soon these patients become much worried and apprehensive, and their faces give evidence of anxiety and suffering. In these cases urination may be accomplished with little difficulty, or the act may be painful, slow and halting, with a small, sputtering, stream, or the patient may have to assume the knee-elbow position in order to expel the urine from the bladder."

Treatment—Though diagnosis is easy, treatment is mostly ineffective. During the attack, applications of ice and leeches to the parts, oral administration of bromides, opium and morphia and rectal applications of belladonna suppositories are recommended. A general anaesthetic may be tried.

Several operative measures are recommended for priapism. Kenneth Walker writes: "Several operations have been suggested, such as division of the pudendal nerves in the perineum, ligature of the dorsal arteries of the penis, and drainage of the engorged corpora cavernosa, either by means of aspiration with a large needle or by incision. Of these procedures, the last named are the most effective, and should be undertaken in cases in which the priapism is due to local mechanical causes.

"If simple aspiration is adopted, a needle of large bore is inserted into the lateral dorsal aspect of each corpus cavernosum, care being taken to avoid injuring the more deeply seated artery. After as much blood as possible has been aspirated the spongy tissue of the corpora cavernosa is flushed out with warm normal saline.

"Drainage of the corpora cavernosa by incision is performed by making a longitudinal opening in the same situation, about 2 inches in length, and sufficiently deep to puncture the strong fibrous sheath surrounding the erectile tissue. As much blood as possible is expressed through the wound, which is then closed, enough space being left for the insertion of a small rubber dam. Strict asepsis must be observed, and care must be taken to avoid injuring the artery running through the middle of each corpus cavernosum. Unless this has been damaged, there is little tendency to haemorrhage once the erectile tissue has been emptied of blood by pressure.

"Hinman reported that of 33 cases treated in this way, 31 received immediate relief. Erectile power is not impaired when sexual desire is retained after recovery. It must be remembered, however, that sexual impotence follows priapism in more than half the cases. The prognosis with regard to life is excellent unless the patient is suffering from leukaemia or a new growth."

Other Forms of Increased Libido—In investigating the causation of increased libido, local factors such as urethritis, anterior and posterior, prostatic abscess and enlargement and herpes genitals and general disorders such as tabes dorsalis, should be excluded. The local factors increase libido by reflex irritation from the diseased parts and the nervous disorders by irritation through the brain.

All other cases of excessive libido should, in my opinion, be considered as non-pathological. The reader may be reminded of certain physiological facts as regards the sex impulse. During the earlier years of life, the sexual impulse is stronger and more persistent than in the later years of life. Then again, the sex urge has a cyclic variation and so the libido may be stronger some days than on others. After prolonged abstinence, the libido is naturally strong. Also when a man carries on constant erotic activities such as flirting, petting, etc., as during the engagement period, or when he starts a new love affair,

his libido is strong. Environmental causes, such as being constantly in the society of women, reading erotic books or seeing erotic pictures, create increased libido. It may be remarked that the term excessive is relative, what may be excessive in one man may be normal in another. Then again, the sex urge varies in different individuals. In some it may be scarcely perceptible, while in others it is so insistent as to appear pathological. It is believed by some authorities that the degree of sex urge is inherited. These factors have to be taken into consideration when a patient complains of excessive libido.

Ordinarily when a man has increased libido, he does not rush to a doctor for help, but he experiments with auto-erotic practices or heterosexual relationships. To some men the former, while in others the latter, may afford the desired relief. When auto-erotic practices do not give relief and heterosexual relationships are not possible, then alone do they consult doctors. Treatment is indicated only when the increased sex urge upsets the patient's routine of life or disturbs his peace of mind and makes him restless, sleepless and unable to concentrate on his work. Bromides and other sedatives are of doubtful value in such cases.

SUBLIMATION

Advice about self-control and sublimation is more easily given than practised. It may be definitely stated that sublimation is not possible for all individuals. Even Roman Catholic priests who live a simple and austere life are often tortured by excessive libido. Sublimation they do not always find possible. Some of them have told me that continuous meditations and prayers often help. This, however, is not usually possible for men outside the religious order. Havelock Ellis writes of sublimation as follows :

“In the field of sex, ‘sublimation’ is understood to imply that the physical sexual impulse, or libido in the narrow sense, can be so transformed into some impulse of higher psychic activity that it ceases to be urgent as a physical need. The conception is now widely current in popular psychology. Those who adopt it, however, do not always seem to realize that this process of ‘sublimation’ is even in its original imagery a process involving much expenditure of force, and in its metaphorical and spiritual form far easier to talk about than to achieve. That it stands for a real psychic transformation

of physical impulses, by which the grosser physical desires are lifted on to a plane where their keenness is lost in the gratification of desires which correspond to the physical but are more, as we say, 'spiritual' in nature may be accepted. But that transformation, though possible, is not easy nor of swift attainment, and perhaps only possible at all for those natures which are of finer than average nervous texture. Thus, Hirschfeld, who prefers to speak of 'sexual equivalents' is cautious in admitting sublimation, and denies that the sexually abstinent yield intellectual products in art or science superior to those yielded by persons not sexually abstinent. It is only in men of religion, and in those engaged in strenuous motor activities, that Hirschfeld would clearly admit sublimation. It is not until the coming of Christianity that the idea of sublimation begins to take definite shape."

EXCESSIVE LIBIDO AND SEX RELIEF

What then is the remedy in non-pathological increased libido when sublimation is not possible? Some remedy is called for in men in whom excessive libido produces distressing symptoms. A meat-free diet is often advised, but a good many Hindus are vegetarians and some of them suffer as acutely from excessive libido as meat-eaters. Non-spicy food, avoidance of alcohol and tobacco may help. In most cases, however, some method of sex relief would be found necessary. The patient usually comes to the doctor with a knowledge of the various avenues of sex relief and he would expect the doctor to advise a method that is harmless and suitable in his case. The doctor should not make the selection for him but he should be made to select for himself. This is the advice Havelock Ellis gives with which I am in full agreement. The advantages and disadvantages of marriage, casual heterosexual relationship with prostitutes or others and auto-erotic practices should, however, be explained to the patient.

EXCESSIVE LIBIDO IN ELDERLY MEN

Excessive libido is not confined to young men alone, it is seen in middle-aged and also in elderly men. In the latter, it may flare up after years of apparent absence. Round this question, controversy still rages. Some authorities think that the flaring up of libido in elderly persons is a sign of hypertrophy of the prostate gland. According to Rohleder if, in old

age the sexual impulse reawakens with sudden violence after a long period of quiescence, it is always pathological, a symptom of senile dementia. Stekel says :

“To be sure many brain diseases (senile dementia, general paralysis, brain tumors) begin with an abolition of inhibitions. But there are excellent men who experience a second puberty in old age without its being pathological. I call attention to Goethe, Maurus Jokai, Gustav Freytag, and many others, who were overcome in old age with amorous passions. The fact that erections can suddenly appear after ten or twenty years of apparent impotence makes us think, and confirms my assumption, that the capacity for erection generally does not vanish and is only suppressed through psychic inhibitions. An increased sexual desire occurring in old age can especially be explained as a psychic phenomenon. It is the flaring up of the candle before the extinction; an increased longing before the exit from life; the vital impulse manifesting itself in desire for love. In like manner, soldiers, before a battle, are attacked by a frenzy for love when they are about to meet death. I am acquainted with cases where soldiers masturbated ten times before storming a position.”

My own view on the subject is this : Excessive libido may be caused by organic factors such as irritative conditions of the seminal vesicles, posterior urethra and prostate gland; or by an excessive secretion of the male hormone; or from psychic factors such as excessive erotic activities and so on. In elderly men, a sudden increase in the production of the hormone may be ruled out, unless we subscribe to the view that increased erotic activities increase the production of the testicular hormone. Excessive libido may accompany brain diseases such as senile dementia but this causation is rare. The usual causes, therefore, are organic and more often psychic. Of the psychic causes, the commonest is an elderly man falling in love with a young girl. Here men vary in their sexual reaction. In some the attachment to a young girl may cause a sudden flaring up of libido with corresponding increase in sexual powers, while in others the flaring up of libido may not be associated with increased virility. Such persons are the ones who consult sexologists. They usually hide the fact that they are secretly in love. Or again, libido may flare up without any apparent cause, as Stekel says, and when means for sex relief are not available, the sufferers consult doctors.

I know many cases where men have married after 60 and raised a family. Stekel quotes numerous instances, a certain Thomas Parre marrying again at the age of 130, the Frenchman Longville living 110 years and having 10 wives, the last marriage being at the age of 99 and so on. From this Stekel arrives at a quaint conclusion: "All old persons have been married, and, to be sure, more than once and, usually so, even at an advanced age. *Not a single case is known where a celibate attained very old age (i.e., over one hundred years).* This rule holds for the female as well as the male sex." There is a great amount of truth in this statement, as I am convinced that elderly and old persons who have opportunities and are able to live regular and regulated sex life, in or outside marriage, are healthier in every way than celibates in the true sense. It may be argued that good health may be the cause of their being able to live a regular sex life, but I think the converse is more probable. A few illustrative cases are given:

Case XIX—

A doctor writes:

"It struck me that I might seek your valuable advice on a matter of sex that has been troubling me. But my trouble is just the reverse of which people usually seek advice for, as will be seen presently.

"I am now about 53 years old and yet I may say that I am sexually strong. But unfortunately, I am a widower for the last five years. There is no present prospect of my marrying again—nor have I any intention to lead what is called the 'companionate life' nor the scope for it in the society in which I find myself—owing to various social taboos attached to such a life. The chief social difficulty comes in this way. I have children—some of them marriageable girls. Now whatever I may do, out of the way, *directly* affects their prospects of getting good matches in society. I have put my case fairly clearly.

"Now comes my trouble. I am sexually strong. I have been trying my best to suppress or control as much as possible. Sometimes I seem to succeed, but more often I fail.

"Now may I request you to go over my case and prescribe for me any drug or any line of treatment which I can adopt without *harming* the system, so that gradually I can eradicate the craving."

This is a problem that confronts many elderly men. I had no chance to interview or examine the doctor, as he was in another station. If he had any local irritative factors, he would have written to me about them or of the symptoms associated with them. I did not feel justified in prescribing any line of

treatment in this case, as I felt that his condition was physiological and not pathological. Heterosexual relief is obviously the only remedy. This he knew but to him it was not practicable. I, therefore, replied to him saying that treatment would be of no use in his case.

Case XX—A few years back I was consulted by a medical student with this history: He was 23 years of age, healthy, well-up in his studies and engaged to a girl in his native place, but was not sure whether he was in love with her. However, he was fond of her and felt that he could live happily with her. He could not marry just then, it may be months or years before he could do so. The reason was that he had an unmarried elder sister and before she was married, his parents would not consent to his marrying.

His sex urge was strong or rather above the average, from a very early age. He started masturbation from the age of 16 or even earlier. It relieved him in the earlier days but now he thought that the practice was unsatisfying. He had not tried coitus because he had an innate aversion to prostitutes. He feared also venereal infection. He tried petting and other forms of love-making even to the point of ejaculation. These he found unsatisfactory, as even after ejaculation, he felt that his sex needs were not lessened.

His libido these days was so strong that he was not able to concentrate on his studies. He was restless and sleepless. He was not fond of sports, but played tennis fairly well. He tried strict dieting, *asanas*, walking, etc., till he was physically tired, with no benefit. He wrote to his father about his condition and begged to be allowed to marry. This was not agreed to. He was thinking of easing his misery by visiting prostitutes when he met a nurse of about his own age who was willing to allow coitus.

He wanted my advice on the matter. He needed some form of heterosexual relief of his sex needs—that was certain. He appeared an intelligent and frank young man with no neurotic signs at all. He did not think promiscuity was wrong or sinful but he could not decide for himself which line of conduct he should adopt. His house physician had prescribed him bromides and other sedatives. They made him drowsy and inert, but did not lessen his libido or sex needs.

Here was a fine type of young man with no prudery or inhibitions and who was not afraid of facing his personal problems but who wished expert advice to help him to select the right course. This is the problem of hundreds of others of his age. His parts were perfectly normal—without any noticeable hyperaesthesia or other abnormality. He avoided love-making, reading erotic literature and even attending cinemas, as he knew that these would only increase his sex needs. The increase in libido was not an evanescent phase, as he has been continuously tortured with it for over fourteen months.

Let us now discuss the case thoroughly. The orthodox would unhesitatingly say that he should suppress his sex desire and probably he was exaggerating its effects as he wished to live an "immoral" life, being a "vicious" fellow. I studied the man. I interviewed him three times and was convinced that he was a clean specimen of manhood, not vicious, and his misery was real.

Now as regards suppressing his desires or sublimating them, he had made an honest attempt to do so by dieting and other methods which are believed to depress sexuality, and he gave up everything which his commonsense told him would increase his sex needs with no appreciable benefit. He had tried bromides and other sedatives without effect.

The question to consider now that other lines of treatment have failed, is how to help him. Some form of sex relief would have to be advised. Masturbation the man finds unsatisfying. He is not unique in this experience. There are hundreds of men who find the practice unsatisfactory and unsatisfying and the continuous indulgence in it disgusting. He had tried it and gave it up. If he had told me that he would resort to masturbation, I would have had less respect for him, not because I consider masturbation harmful and those addicted to it bad. Giving way to the habit shows an easy-going mentality—a mentality that would be satisfied with any available means which is easy and require no trouble, to secure.

Marriage would be the ideal solution but he could not marry for reasons stated. His father might be blamed for not permitting his marriage but it is an unwritten law in Hindu society that elder sons and daughters, especially the daughters, should be married first. Otherwise, there would be social stigma. Marriage with the consent of his parents was thus impossible and I could not advise, for obvious economic reasons, marriage without their consent.

We have now ruled out marriage and masturbation. He did not consider promiscuity sinful though he had an aversion to prostitutes. Possibly his objection to prostitution was based on a subconscious association of it with venereal infection. Then again, prostitution would mean expense which a student dependent on his father's remittance could not afford. With his sex needs, he would probably have to go very often to prostitutes.

Last, we come to his forming a liaison with his obliging nurse friend. Both prostitution and promiscuity (his liaison would come under the category of promiscuity) might instil habits of unfaithfulness which may persist even after marriage. This is a risk worth taking. I advised the young man that the liaison might be tried, provided he let the girl clearly understand that he was already engaged and so he could not marry her. He should also avoid making her pregnant. In this case, I made the choice for him, because the patient himself had eliminated the other avenues of sex relief as impracticable or unsuitable in his case.

The student formed the liaison, passed his final examination with distinction and is now married to the girl he was engaged and happy. It may be pointed out that the solution suggested is applicable only in this particular case, in other cases, masturbation or prostitution may have been the solution. Each case should be decided on its merits. All that is aimed at here is to help the physician in guiding his patients in "facing" their problems. There are innumerable men, young, middle-aged and old, who suffer mental agony from increased libido. I have found certain remedies mentioned in the next chapter easing their misery, but not one, except sex relief, to have a definite curative effect.

VII

HYPERAESTHETIC DISORDERS (*Continued*)

INCREASED ERECTION

Increased erections or erections produced on the slightest provocation are caused by organic or psychic factors and rarely by endocrine factors. The organic causes are hypersensitiveness of the glans penis, as seen in phimosis, diseased conditions of the urethra and prostate gland, as after gonorrhoea and overfull seminal vesicles, as after prolonged abstinence. Irritations caused by urinary calculi and those associated with thread worms also bring on increased erections. Among the psychic causes, the more important are excessive erotic influences and practices. When no cause can be detected and erotic life is normal, continuous erection may be the first symptom of nervous diseases, such as tabes dorsalis. Alcohol as a cause of increased erections should not be forgotten. As excessive libido causes increased erections, the factors causing excessive libido also bring on increased erections. It was mentioned that drugs like cantharides give rise to increased erections, but these are accompanied by pain.

The most important is organically caused increased erection. Priapism was already described as definitely pathological. Even in cases which are not really priapism, the erection may be troublesome and embarrassing. When the erection is more or less continuous, frequent urination may be noticed and the stream may trickle out with difficulty. This adds to the physical discomfort and mental distress of the patient. Unsatisfactory sexual practices predispose to increased erections. For instance, after masturbation the erection may not fully subside after ejaculation in some men and they may feel the need again for further immediate sex relief. A friend of mine told me that ordinarily after an emotionally satisfying coitus, he feels no sex urge for three or four days, but after an unsatisfactory coitus or masturbation he feels the need again soon after.

Kenneth Walker speaks of cases "in which no explanation can be found for erection. We have most often encountered such cases among elderly men who complain that although they have long lost sexual desire, their sleep is disturbed by per-

sistent erections. Rectal examination and cystoscopy fail to reveal any prostatic lesion, and no explanation of the condition can be found. Treatment by means of sedatives is only partly successful, but usually the trouble clears up eventually without any light having thrown on its aetiology." I think such cases should be considered in the same light as increased desire flaring up in old age.

FREQUENCY OF COITUS

Here may be discussed the question of what time should elapse before a normally virile man could have another intercourse. This depends on various factors. An unsatisfying coitus may mean that the man can be ready for another coitus very soon after. Then again, a very attractive partner could make the man ready for the second coitus even after a few minutes. In the first instance, the seminal vesicles do not empty completely and hyperaesthesia of the sex organs does not subside. In the second case, the impulse is from the brain. I know a man who completed four coitions with a prostitute in an hour. This was after an abstinence of a year and the woman stimulated him by handling his organ. Alcohol helps most men to have repeated coitions.

Various other psychic factors may also operate. When a man has had coitus with one woman and if another is available he will be able to have coitus with her immediately after. I know a man who had a fixed idea that with professional women, the fee for each coitus was Rs. 10/-. Once a woman charged him Rs. 30/-. Being a Shylock wanting his pound of flesh, he had three coitions with her in two hours—not because he desired it but merely to get his money's worth of enjoyment. Generally speaking it may be mentioned that individuals vary in their capacity for repeated coitions. A healthy and virile man should be able to have a second coition within half an hour of the first, other factors being favourable. This would never be possible for hypochondrics, i.e., men who think that repeated coitions and the consequent loss of semen are harmful to health, mental and physical. This belief, though erroneous, will by itself act as an inhibitory factor. (See Chapter on Sexual Neurasthenia.)

PREMATURE EJACULATION

Premature ejaculation, also known as *ejaculatio proecox*, is so common now-a-days that one feels inclined to consider

it as an accompaniment of civilization. Dickinson reports of the husbands of his gynaecological patients in New York, that one out of every eight is capable of intercourse only for "an instant." He further estimates from statements supplied by his patients, that in 40 per cent. of cases, the intercourse lasts less than five minutes. This may be taken as a rough estimate for the total population in any country. This appears to apply more to the civilized races than among primitive tribes, but there are no controlled studies among the latter. How long a coitus should last was discussed in Chapter II.

The causes of premature ejaculation are organic and psychic. A possible endocrine cause was discussed in Chapter V. The organic causes of premature ejaculation are more or less the same as those that cause increased libido and erection, viz., phimosis, and diseased or hyperaesthetic conditions of the urethra and prostate gland and seminal vesicles. Thread worms, haemorrhoids and similar conditions also decrease coital time. These, however, can be easily excluded. It should be remembered that when coitus is indulged in after a long period of abstinence or with a new and attractive partner, premature ejaculation is the rule.

The psychic causes are very common, even more common than organic causes. The various factors that cause premature ejaculation are too numerous to be enumerated in this book. Curiously, psychic factors causing increased as well as decreased libido may bring on premature ejaculation. A point that may be emphasized is that ejaculation may take place from an erect penis or from a flabby penis. The latter condition is seen in atonic types of impotence (this is organically conditioned), but more commonly in psychic cases. Ejaculation from an erect penis may be caused by either factor. The history and a complete physical examination would help in the differential diagnosis.

Analysing the psychic causes, we shall find that they come under two categories, inhibitions and fixations. Premature ejaculation is usually the rule when coitus is indulged in against one's moral convictions. For instance, a man attempting coitus with prostitutes when he is convinced that this is wrong or sinful will ejaculate even before intromission. It often acts as a protector of one's virtue. I know the case of a man, otherwise perfectly virile, who did not get an erection or ejaculated

before intromission when he attempted coitus with girls of pre-pubertal age.

Stekel says: "I have never seen a couple who were really in love complain of *ejaculatio praecox*. Whenever such disorders are present, something is wrong with the love, inner resistances prevail which have not been entirely overcome." When a man has ceased to love his wife, either his erections would be feeble or he would ejaculate early. The usual inhibitions are, according to Stekel, "aversion, fear of infection, religious and ethical considerations (for example, the teacher who co-habits with a pupil; a man who seduces the wife of his friend; a physician who wants to cohabit during his consultation hour; a clergyman who has had dealings with a confessant; a husband who is unfaithful to his wife, etc.)."

It is thus clear that it is not easy to arrive at a correct diagnosis as regards the psychic factor causing premature ejaculation, except by patient questioning of the patient and by excluding organic factors. Precipitate ejaculation, i.e., ejaculation before intromission, is only a more advanced stage of premature ejaculation. This condition is also known as *ejaculatio ante portas*. The illustrative cases given below will give the reader some idea of the various psychic factors that may cause premature ejaculation and how to investigate them.

Case XXI—

A patient writes:

"I am 38 years old, married for ten years and physically sound in mind and body. Yet I am suffering from an acute form of premature ejaculation. I suffered from this malady for years and years. Now I think that this is the sole cause of my marriage being ruined—as my wife and I are living separately. In desperation I look to you to pull me through. I have tried the 99-A jelly but without success. I have tried contracting my anus as one sex book advocates and this too with complete failure. The most distressing point is that the sex act having hardly commenced when this premature ejaculation on my part ruins the whole thing. I suggest that some drugs or local deadening of the nerves would be of some benefit. I found that being in a very drunken condition, orgasm is delayed to a very great extent, i.e., the more intoxicated I am, the longer it takes to ejaculate. Kindly give me something drastic as mine seems to be a very acute case."

During a personal interview, the following facts were revealed. He was brought up in a religious atmosphere. His sister was in an insane asylum. When young he was in love with a girl (small and slim, his ideal of beauty), but married another (big-made and fat).

His libido and erection were always strong but he suffered from much "leaking" and precipitate ejaculation. He had one child. Wife was suspected to be unfaithful and he was toying with the idea of a divorce and at the same time has begun to carry on with an old sweetheart, who was living separate from her husband. They met secretly at any secluded place available and had coitus and invariably he ejaculated soon after intromission. No contraceptives were used. Masturbation he practised from 15 to 18. He had his first coitus at the age of 22 with a prostitute when also he had premature ejaculation. He had no previous illnesses except two attacks of rheumatism. On examination the parts were normal.

This was definitely a psychic case. His early religious training made him feel that extra-marital sex relations were sinful. His ideal of beauty was small and slim women but he was married for reasons of convenience to a big, fat woman. This woman was a nagging creature and hence his precipitate ejaculation with her—a sort of punishment. The woman he was carrying on with was small and slim but coitus was indulged in with fear of detection, also fear of possible pregnancy and a subconscious feeling that he was sinning against his wife. During the interview, he said that physical pain delayed ejaculation, as when the sweetheart bit or pinched him hard. This was based on the principle of atonement. Alcohol also delayed his ejaculation because it got rid of his inhibitions. These facts were explained to him and he was prescribed a sedative to be taken an hour before coitus and 99-A jelly as local application. A few days later, the patient reported considerable improvement. He was not willing to undergo psycho-analysis or any other treatment.

Case XXII—A well educated professional man, aged 37, married eleven years, wife 28 years old and father of two children, consulted me for premature ejaculation, more often ejaculation immediately on penetration. This condition existed from the beginning of his sex life. Recently he has been noticing lessened libido and also that the erection subsided without ejaculation during love-play. His general health was satisfactory and sex system normal, except for slight tenderness of the prostate on palpation. It was diagnosed as a case of psychic impotence and psycho-analysis was undertaken. There is no need to give all the details of his past sex life here but the factors that brought on the psychic impotence are noted.

From 15 to 21, he used to masturbate off and on, often by the hand and occasionally by pressing the thighs together. After each act he used to feel physically exhausted and mentally guilty. At 19, he attempted sodomy on a fellow student but discharged before penetration. At 20, he was betrothed to a girl of 10, pale and unattractive but coming from a rich family and of a good social status, whom a few years later he married. Effective marriage began at the age of 26, the wife being then about 16 to 17. He thought her then to be handsome. On the first night she refused to go to his room but was persuaded by her parents to do so. He discharged

while attempting penetration. The girl then ran away to her parents' room. The month she was with him he tried coitus on two other occasions and these also ended in failure. The first failure was accountable, because it was his first attempt at coitus and the subsequent ones were caused by his anxiety and also his subconscious desire to punish his wife for refusing to allow him coitus whenever he wanted.

For the next seventeen months, she was with her parents. The husband now fell ill, possibly a nervous breakdown through sexual repression, and was sent to a hill station to recuperate. The wife out of a sense of duty accompanied him. While there, her attitude towards him changed and he had an occasional coitus with her, but always discharged soon after penetration. The wife was sympathetic but told him plainly that he was no good at it as she was left unsatisfied, excited and sleepless. His pride was hurt, because he was till then successful in all his undertakings. This was his first failure in life and he wanted to prove to his wife that he was a "man." The more he tried to succeed in coitus, the greater was his failure and disappointment.

In spite of his weakness, two children were born. The wife had an excuse now not to allow coitus, because she said she had to look after the children. The husband knew that her refusal was solely due to his lack of potency. The wife showed signs of consumption. That put a stop to all chances of having any sex life. He was very angry with his fate and also with his wife and often thought of keeping a mistress. What deterred him was the certain displeasure of his wealthy father-in-law. The wife became pale and ill-looking and he felt no libido when he was near her. This was relative, because even a healthy coolie woman could excite his libido, but not his wife. During the analytic treatment, without my knowledge he went to a prostitute and had *the first successful coitus in his life*, "till the woman was tired out." Later he confessed that before the analytic sittings began, he had been to the same prostitute and discharged during love-play. His failure with the prostitute at the first attempt was due to the auto-suggestion that he would ejaculate early and possibly also to a sense of guilt in deceiving his wife and incurring the displeasure of his father-in-law. These were removed by the treatment.

He had no other treatment but psycho-analysis which he would not complete. When he returned to his place, his doctor was advised to give him injections of Vitamin-B₁, and glycerophosphates alternating with injections of testicular and follicular hormones. His wife was better in health and agreed to coitus with contraceptive precautions. He was confident that he could have successful coitus with his wife but there was no libido when he approached her. The cause for this was chiefly his subconscious hatred for her and to a less extent the fact that she had now no sex appeal for him. In this case I do not think any other line of treatment except psycho-analysis would have helped.

Case XXIII—

A final year medical student wrote :

"A sad anxious looking Muslim male aged 30 years, attended the outpatient department of my hospital on August 14th, with the following complaint :

- I. Married since two months; inability to perform the sex act on account of seminal ejaculation taking place on merely touching or handling his wife.
- II. Inability to concentrate his mind on his work (he was a clerk in the railway), and vague pains.
- III. Loss of appetite and general bodily weakness. Past history of masturbation since early boyhood—the habit was given up six months before marriage.

On examination, the generative organs showed no physical defect. No evidence of pituitary deficiency or other hormonal imbalance was seen.

Mental attitude was strikingly tragic. Patient was much depressed in spirits and attributed his condition to the habit of masturbation. He expressed extreme helplessness; to quote his words, "I will be doomed with shame if I don't succeed with my wife."

Actual examination of the nervous symptoms showed no abnormality, except that the deep reflexes were rather exaggerated.

Treatment given—Personally I did not know what to prescribe although I had read your book, *Sex Knowledge for Boys*. Unfortunately, nothing on the subject is given in textbooks of medicines, nor is it taught in our institution.

I referred the case to the senior doctor in charge of the outdoor. He prescribed Pot. Bromide gr. 10 twice daily, and complete sexual rest for seven days.

The patient was not, however, quite satisfied. He persistently asked for some local application to his genitals, such as could repair or mitigate the damage done directly to the part by masturbation. From what I had read in your book, I tried to convince the poor fellow that the application was not necessary, as masturbation does not cause any physical damage to the parts. What was his trouble due to, if not to masturbation? I could not give him a convincing reply, nor could any of the senior doctors. Anyway, he was persuaded to try the prescription. He left the outdoor and was soon forgotten.

Two weeks later the patient again returned, much more miserable than before, and complaining that there was no appreciable improvement.

The senior doctors only laughed at him and jokingly said to him that there was no other remedy for him. I being a student knew still less on the subject. I felt it was too cruel, and took him into confidence, though did not honestly know how to treat him. I sud-

denly hit upon the idea of asking your own opinion, hence this letter. I told the patient to see me again after a week when I would be in a position to direct him properly.

In short, I request elucidation on these points :

- I. How to convince this patient that masturbation is not the cause of his complaint ?
- II. What is the underlying cause ? Is it not due to hypersensitiveness of the higher brain centres resulting from excessive imagination of various sexual possibilities ? In other words, the brain becoming so much sexually strung on account of sexual thoughts visualized deliberately over a long period, that mere bodily touch with members of the other sex is enough to cause ejaculation ?
- III. How to treat such a case ? Is it not something in the direction of recultivation of the will-power on the part of the patient ?

This is a clear case of neurasthenia brought on by psychic type of premature ejaculation. The writer of this letter, though only a student, understood better than his teachers the misery that might be caused by sexual weakness. He had analysed the case very well. The difficulty was about treating a psychic case by correspondence. A few days later I received the following communication from the student :

"I met the patient again yesterday and I asked him very sympathetically if he had anything more to tell about himself. He confronted me with the following puzzle : The night before, he had again made an attempt at sexual intercourse with his wife (with whom he says he is deeply in love), but he discharged as soon as he touched her with his hands. He felt much depressed and sank into a deep sleep while still brooding over his misfortune. He had not been asleep long when he was suddenly aroused by the bark of a dog. He saw his wife lying beside him also wide awake. He felt his organ becoming as full and erect as before (his erectile power is quite good). There was no discharge this time, however, and he made another attempt at coitus. To his surprise and amazement, he was able to effect penetration and the act lasted a minute or so before there was ejaculation. Then he went to sleep contented more or less. But his original complaint still remains—he wants to be able to succeed without a previous ejaculation, in order that he may feel normal.

"Personally, I am unable to understand how he was able to have a second erection within less than half an hour of the first, and why the second act succeeded when the first had failed. Is there any known reason for this ?

"In the light of this new development, does the treatment outlined in your letter need any modification ?

"Again, sir, there is a consensus of opinion in the scientific world that masturbation by itself is harmless. Yet a complaint

like this one is usually said to be preceded by a history of masturbation. How to explain this peculiar paradox? Really, the subject becomes more and more interesting as one probes deeper into it.

"Returning to the case in point, the essential underlying cause is a deep-seated psychic complex, the only proper treatment for which is psychoanalysis and not drugs, that drugs when used are intended merely as aids to psycho-therapy, that the patient should be convinced that masturbation has done him no harm, and that, above all, he should be assured of complete recovery. These, in brief, are the principles underlying the treatment as outlined by you. Let me assure you, sir, I will make full use of these principles and, of course keep you informed of the progress of the case. Poor fellow, his condition is really pitiable!"

The medical student had himself answered what line of treatment would benefit his patient. As I find it is not possible to reply in detail to all the questions I am asked by letter, I asked him to buy *The Art of Love and Sane Sex Living*, study it and then give it to his patient.

Case XXIV—A newly married young man consulted me for precipitate ejaculation. He looked a nervous type of person and stated that his libido and erection were normal. While attempting intromission, however, there was pain in the organ and ejaculation took place immediately. On examination he was found to have partial phymosis. Circumcision relieved him of the pain and premature ejaculation.

Case XXV—A medical man aged 32, happily married for two years, complained of premature ejaculation. His libido and erection were normal and detailed enquiry elucidated no inhibition or fixation. By rectal examination, it was found that his prostate was enlarged and very tender. He confessed later that he used to flirt with various women, whenever he got a chance, often for hours during the day. This sexual excitement without gratification caused the congestion and enlargement of the prostate. On explaining the situation to him, he agreed to give up the flirtations. He was treated with prostatic massage and instillations of silver nitrate, 1 in 1,000 to 1 in 500, every other day. After a month of this treatment his coital time became satisfactory.

VIII

HYPERAESTHETIC DISORDERS (*Continued*)

Other hyperaesthetic disorders of sex are urethrorrhoea, prostatorrhoea, spermatorrhoea, diurnal pollutions, nocturnal emissions and masturbation. Urethrorrhoea has been described in Chapter II. Max Huhner includes all the above conditions, except masturbation, under the term pollution, which he defines as "any involuntary semen-like discharge coming out of the penis and not connected with coitus." This is a convenient way of classifying these conditions. They are not serious, though the psychic reaction of the patient to them is often great.

PROSTATORRHOEA

Prostatorrhoea means the escape of the prostatic secretion from the urinary meatus, usually while straining at stool, after urination or during sexual excitement. This condition frightens the patient into believing that he is losing semen and on the verge of impotence. A microscopic examination of the discharge may show a few spermatozoa in it. There are so many theories as to the causation of this condition as to make the subject confusing. For practical purposes, it is enough to know that prostatorrhoea may be caused by an attack of prostatitis, when it is pathological, or by excessive erotic activities, when it is physiological. The conditions that cause premature ejaculation are also factors in producing prostatorrhoea. Unless there is congestion or inflammation of the prostate or posterior urethra, no treatment is necessary except to explain to the patient that the condition is physiological. If any local cause is discovered, it should be treated. Even in non-pathological cases, treatment may become necessary if the discharge is excessive and causes inconvenience, as is seen occasionally.

SPERMATORRHOEA

As regards spermatorrhoea, there is still more confusion, some authors classifying it as ordinary spermatorrhoea, defecation spermatorrhoea and urination spermatorrhoea. The terms are self-explanatory. It may be mentioned that true spermatorrhoea, that is the dribbling of semen without libido or erection, is very rare. It is seen in cases of paralytic impotence,

usually brought on by excessive venery, when there is complete relaxation of the genital muscles. Urethrorrhoea and prostaticorrhoea are often mistaken for spermatorrhoea. A microscopic examination will settle the diagnosis to some extent, though spermatozoa may be seen in all these conditions. The history of the case will usually help.

DIURNAL POLLUTIONS

Diurnal emissions are rare and the difference between this condition and spermatorrhoea according to Kenneth Walker is this: "Spermatorrhoea is a name that implies a constant escape of the secretion of the testicles, prostate and vesicles; diurnal pollutions an occasional escape. The one is a more advanced stage of the other." Urethrorrhoea, prostaticorrhoea and spermatorrhoea are often confused for this condition. The discharge in this and in spermatorrhoea will contain a good number of spermatozoa and that makes differential diagnosis more difficult. While spermatorrhoea is not accompanied by any sexual pleasure, diurnal emission is often associated with it and this and the history of the case will help in diagnosis.

Diurnal emissions indicate either excessive erotic activities or hyperexcitability of the spinal centre and may follow erotic day-dreaming which is common among young men and boys. Then they have only the same significance as nocturnal emissions. Some authorities think that this condition, like spermatorrhoea, is a sign of or may lead to, atonic impotence. I do not think the last statement is true. If excessive sex activities are forbidden, the condition clears up without any treatment and without damaging the sex functions. A doctor informs me that he knew the case of a medical student who had an emission whenever he was in a tight corner, such as while answering difficult examination papers. This was not accompanied by any erotic pleasure. This probably was due to hyperexcitability of the spinal centre.

NOCTURNAL EMISSIONS

Nocturnal emissions occur in the continent male from puberty onward and vary in frequency in different individuals. Huhner and others classify nocturnal emissions as normal and pathological. This distinction is based on whether there are any organic or nervous lesions causing the emissions. If no such factor is present, it is normal and is a physiological means

of emptying the distended seminal vesicles. The rate of secretion of the constituents of semen varies not only in different individuals but also in the same individual under different conditions. The chief causes of this variation are the natural sex urge and erotic activities. Possibly it may also be hereditary. Then again, when a man occasionally indulges in masturbation or coitus, he will have emissions at longer intervals than when he is entirely continent. Therefore, the view expressed by Max Huhner that normal emissions should occur only once in about ten days is more dogmatic than scientific.

Causes—The organic causes of pathological nocturnal emissions are inflammation, congestion or hyperaesthesia of the prostate gland and surrounding areas due to a previous attack of gonorrhoea, excessive masturbation or coitus and constant sexual excitement without gratification. Huhner is of opinion that coitus interruptus also produces hyperaesthetic disorders, including premature ejaculation. Irritative conditions of the urine also may increase the frequency of nocturnal emissions. Kenneth Walker believes that often it is the central nervous system that is at fault, such as is seen in highly strung and emotional persons. The usual history one hears is that the patient if young was addicted to masturbation or if elderly accustomed to coitus and when this was stopped, nocturnal emissions started. This is in the natural course of events, because when he was having sex relief, there was no accumulation of semen in the vesicles and consequently no nocturnal emissions.

Nocturnal emissions, even if they occur at frequent intervals, cause no damage to the general health or sex functions, but they make the patient feel that as he is losing semen constantly, he is likely to become impotent. This belief brings on severe neurasthenia and even psychic impotence. This is the only reason why treatment becomes necessary in cases of nocturnal emissions.

Non-remedial Measures—The non-remedial treatment I prescribe in cases of nocturnal emissions is :

- (i) Avoid sexual stimulation in any form.
- (ii) Avoid spicy and highly seasoned food, alcohol, tobacco, excess of tea, coffee and meat.
- (iii) Keep bowels regular.

- (iv) During the day, take plenty of exercise in the open air so that a feeling of healthy tiredness may be felt at the time of retiring for the night. This will ensure good sleep and rest to the brain.
- (v) Take the evening meal early.
- (vi) Do not allow sex subjects to be the last thoughts in your mind before you fall off to sleep. If it is so, first get rid of such thoughts by going out for a walk or reading a book which has nothing to do with sex, before trying to sleep.
- (vii) Before retiring for the night, pass urine and wash the parts with cold water. Make it a point to get up, three or four hours after retiring, and pass water again. If you cannot wake up by yourself, use an alarm clock for the purpose.
- (viii) Sleep on one side, but not on the back.
- (ix) Use a hard mattress and avoid many coverings when sleeping.

Cases illustrating some types of hyperaesthetic sex disorders follow. These give the various psychic causative factors of these conditions.

Case XXVI—A well educated patient, aged 27, unmarried, gave me the following written statement :

“My nervous symptoms are so acute as to incapacitate me from doing the smallest thing in the presence of any but the most familiar. If there is a woman present the symptoms become very much worse. This nervousness causes violent trembling all over the body, twitching of the head, thumping of heart, tremulousness of voice, etc. I become totally unable to hold a cup of tea in my hand or carry the food from the plate to the mouth or even to remain standing. Not only nervousness but strong emotions such as anger cause most of these symptoms. Any attempt at concentration causes twitching of the head. Trembling and faltering make it impossible for me to get up even in a small meeting and say a word. However, it is not always so acute. It is much worse after a spell of frequent emissions.

“I have been of a nervous and shy disposition from childhood. This became worse after the perverse excesses (homosexual practices) of adolescence. I must have begun to handle my organ from the age of eight or nine. I started actual masturbation before I was 14. At my very first sex act apart from masturbation, an attempt at homosexual connection in a rather crowded boat at the age of 14, I ejaculated immediately. At about the same time, other homosexual practices were also begun. These consisted in mutual mas-

turbation or masturbation between the thighs of the partner and fellatio but not sodomy. These were practiced also in water while bathing.

"At the age of 18 or 19, nocturnal emissions in an acute form began and I almost completely stopped all deliberate sex acts. Since then I might have masturbated once in five or six months.

"'Oozing' started or was noticed much later. At first, if I remember right, it happened only when the penis was erect and at moments of extreme excitement. Now a casual talk with a girl produces this without any apparent excitement and any erection at all.

"When straining at stool, a thick mucous liquid is discharged (spermatorrhoea) and this must have started a few years ago; but I do not remember exactly when. Recently, there has been a spell of frequent emissions.

"Premature loss of erection was noticed only a year or so ago. Now the erection lasts only a few seconds and subsides before any emission.

"I feel that my organs are undeveloped. I suffer from frequent attacks of loose and irregular bowels, alternating with constipation and there is a suspicion of piles.

"I have always been terribly attracted by women, but the feeling of my inability to satisfy them prevented me from approaching them till very recently, though the opportunities for doing so were galore. A couple of months ago, a friend's wife embraced me and afterwards I used to meet her every now and then in private and kiss and caress her for hours. A few days ago I quarrelled with her. As long as this affair lasted I used to feel flattered and fancied that there was an improvement in nervousness. But other symptoms, if anything, became worse.

"I am very sensitive by nature and insult and humiliation are the two things which are most unbearable to me. I was singled out by my fellow-students for abuses. Most of these turned on a baseless suspicion that I lent myself to homosexual practices. As a passive partner I might have had homosexual indulgences some six times at the outside. It was all highly distressing.

"We were a large family, my father married three times and my mother twice. In all, there were five brothers and three sisters. I was free and happy in the midst of them all, but in any other company, I always felt self-conscious and uncomfortable. My parents were extremely religious but not morbidly so. I do not remember to have ever experienced any very distressing sense of guilt, though till about 20 I was also very religious. The memory of fervently praying night after night to be saved from nocturnal emissions and getting up in the morning in any agony of disappointment is still very fresh. Now I am an atheist.

"Childhood has left behind a few memories. One of them is of attempts at the age of about three or four to peep at the private

parts of my mother and other women. At the age of about eight or ten, a class-mate told me something about emissions, homosexuality, etc. Another memory of the same period is still very fresh and vivid. In the company of some of my pals, I was stupid enough to urinate upon a Hindu idol. Immediately after, I felt frightened and remorseful."

That is the end of the written statement. His nervous symptoms were real, brought on by self-consciousness and want of self-confidence. He was timid and over-anxious to get the good opinion of others. In analysing this case, we find that his first sex act was an attempt at sodomy in a crowded ferry-boat. At that time, he was very religious and the act was attempted with a feeling of sin and a fear of detection. The result was premature ejaculation. Being timid by nature, he never approached any woman but he admitted that his chief pastime when young was of peeping at women's parts in lavatories or at their naked bodies when they were bathing. As regards his "oozing" or spermatorrhoea as he calls it, it was most probably urethrorrhoea. His constant nocturnal emissions were caused by continuously indulging in sex thoughts. The penis was quite normal in size for his height and build. There was some tenderness of the prostate and posterior urethra and the attacks of loose and irregular bowels were partly due to intestinal worms and partly due to the disturbance in the nervous mechanism caused by sexual excitement without gratification. The one and only heterosexual experience he had was with the wife of a friend, a circumstance that would create a feeling of sin and then there was also the fear of detection. The inferiority complex was there, because he had lent himself to passive and active homosexual practices, and due to the tauntings of his friends, and also to some extent to his slightly effeminate appearance. This gave rise to self-consciousness. During his recent love-affair, it appeared that while caressing and kissing the woman, erection though feeble was present. In spite of her importunities, he would not agree to coitus, as he thought there would be no erection and even if there was, he would ejaculate prematurely.

The patient, being a well educated man, used to analyse his condition and attributed the subsidence of the erection during flirting to another cause. It seems that once when he was masturbating the erection subsided. He wanted to know why this happened. When I could not think of a possible explanation, he himself suggested one, namely, he wanted to delay ejaculation and as the only way to do it was for the erection to subside, he willed it to happen, and so the erection subsided. Whatever this may be, it was definite that all the symptoms were due to psychic factors.

Analytic and psychic treatment were given. He was given injections every other day of 5 mg. of testicular hormone combined with 2 mg. of luteal hormone. After the fourth injection, the nocturnal emissions, which used to occur on the average three times a week, almost entirely stopped. His confidence in his sexual powers returned

and on my advice he broke off his relations with his friend's wife. I made it clear to him that he should not attempt any sexual practice against his moral convictions. He was put on a mixture containing bromides and valerian. This was prescribed for his general nervous symptoms. Except for the twitchings of the head he is alright, even his nervous symptoms have vastly improved.

The following case is instructive as it gives a typical history of "dribbling of semen." It may be pointed out that cases like these may be illustrative of more than one condition. For instance, this case may also come under defective erection caused by psychic factors. For convenience, however, it is quoted here.

Case XXVII—A man aged 25, consulted me for inability to perform coitus through lack of erection. He was a well-educated business-man with no financial or domestic worries. He practised masturbation from about the age of 11 or 12. He did not like the practice but resorted to it merely to relieve his sex urge. Nocturnal emissions started at the age of 14. Till the age of 15, his knowledge of women and sex was gained from books. At about this time, he was persuaded by his servant woman, aged about 28, to have sex relations with her. She was tall, well built and had huge busts. The history I am giving here was not narrated to me by the patient in consecutive sequence but was pieced together during analysis.

At the beginning he enjoyed sex life with the woman and he used to go to her room two and three times a night, almost every other day. In other words, he had about 40 to 45 coitions a month. After about six months he showed signs of nervous breakdown. He used to give up visiting the woman for a week or so and then started the affair again. About eight months after the affair started, he used to get severe backaches and felt generally rundown in health. He wanted to end the affair but somehow it went on for another four months, when he persuaded his father to dismiss the servant.

Soon after, he began to get "dribbling of the semen" in large quantities. This probably was spermatorrhoea because the patient was definite that it was semen that dribbled as it stained his clothes just as semen did. He was convinced that he was impotent which was brought on by his sexual excesses and he scarcely got erections. He gave up all thoughts of sex and women. He did not consult any doctor and though he was reconciled to his being permanently impotent, he was anxious to have the dribbling of semen stopped as it was embarrassing. After a month or so, it stopped without any treatment and about six months later, he felt perfectly normal, sexually and physically.

Libido and erections returned and also occasional night emissions. From the age of 20 up to the time he saw me, he visited houses of prostitutes with friends on many occasions. The moment

he entered the house, he felt a sudden rushing of blood to his head and thumping of the heart. He thought he burnt with fever and every time he attempted coitus, he ejaculated without erection. The patient said he had "enlargement of the penis without erection." Before he saw me he had 35 injections of strong doses of the testicular and pituitary hormones. This had no effect whatever on his impotency.

On going in detail into the history, it was discovered that he was in love from the age of 12 with a cousin of his who was a year older than himself. She was small and slim, a "perfect beauty," quite a contrast to his coarse and sensual looking servant sweetheart. These facts give us a clue as to the cause of his nervous, physical and sexual weakness. First, he was deeply in love with one person; second, he was afraid of being caught in the servant's room by his father or cousin; third, he used to have about three coitions a night. This meant not only anxiety, fear and physical and sexual exhaustion, but also loss of sleep and great nervous strain. He was only 15 years old at that time. In the later months, he wanted to end the affair with the woman and visited her only through her importunities and to relieve his pressing sexual tension. When he had coitus with her, he used to rush through the act and never felt or expected any pleasure from it. All these together caused his ill-health and the dribbling of semen.

A curious fact came out during the analysis and that was, he had made a vow when he got the dribbling of semen, that if it stopped he would never think of sex or women or even get married. His cousin still retained her place in his heart as the ideal of beauty and purity. Because of his vow and because she was one year older (in his community marriage with an older woman was seldom contracted), he did not speak to her of his love or ask her to marry him. He was staunch and faithful by nature and because of his love for his cousin and possibly also because of the fear of venereal infection, he did not like sex life with prostitutes. Then again, his sex experiences were always in the privacy of his own home and visiting a public house was something different and unfamiliar. There were also greater chances of his being caught by friends while visiting these houses. He visited these houses only to see whether his potency had returned, and also through the persuasion of friends. It needs no psycho-analyst to see why his attempts at coitus with prostitutes ended in failure, in spite of the hormonal injections he had received.

On examination he was perfectly fit physically and mentally, except for his extreme sadness that he was impotent and at his inability to marry and raise a family. Incidentally it may be mentioned that the cousin with whom he was in love was already married and the mother of two children. His cousin-fixation was still there, as a matter of fact he used to think of her more often, because he heard that she was not happy in her married life as her husband was a roue. His prostate was enlarged and the posterior

urethra tender. Two years back he contracted gonorrhoea from a prostitute though there was no actual penetration. He was treated by a specialist for this condition. He used to have powerful morning erections in the warmth and privacy of his bed.

Psychic and analytic treatment was given and also injections of testicular hormone 5 mg. combined with luteal hormone 5 mg. A point that may be emphasized here is that care should be taken in selecting the right combination of hormones in treating cases like this. The patient's chief complaint was lack of erection and so the temptation would be to use the testicular and follicular hormone. This would have had an immediate psychic effect by increasing his erectile power. Increasing the erectile power when the posterior urethra was congested would have made his premature ejaculation worse. The patient was intelligent and it was explained to him what treatment was given and why. He was also told not to attempt sex life merely to test whether he was potent but only when he felt the real urge for it. It was also made clear to him that as he had an aversion for visiting public houses or prostitutes, this type of sex life might end in failure.

MASTURBATION

More rubbish has been written on the subject of masturbation than on any other manifestation of sex. Up till comparatively recent years, almost every writer on the subject condemned the practice as harmful. It was considered to be the cause of all ills, mental and physical, the adolescent is heir to, from pimples on the face to anaemia and from loss of memory to insanity. Even to-day, many theologians and educationists and even doctors cling to this unscientific and outworn view. The consensus of opinion in the scientific world at the present time, is, however, that masturbation and other forms of autoerotism are natural occurrences at certain stages of development of the human being and that the practices by themselves cause no harm to the body, mind or sex functions. It is so deeply rooted in the minds of the majority of doctors that masturbation is one of the chief causes of impotence that they do not look for other causes of the condition. The patient believes this and when the doctor confirms it, the psychic symptoms become worse. In most cases, it is as well to begin by assuring the patient that masturbation does not cause impotence. Some people consider it also as a form of perversion, others as a type of narcissism. These views are definitely wrong. Max Huhner considers that congestion and inflammation of the prostate and posterior urethra produce the habit and claims that every case can be cured by local treatment. Kenneth

Walker, a urinary surgeon of international repute, refutes this theory :

“With this treatment alone, and without the help of any psychotherapy, Huhner maintains that practically all cases of masturbation can be cured. We must admit that our experience is not in line with his. We are of the opinion that Huhner has exaggerated the importance of physical factors in the production of masturbation, and consequently of physical remedies in its treatment. In our own practice the discovery of gross changes in the prostate and prostatic urethra is exceptional, and for this reason we put much emphasis on psychotherapy and little on physical treatment.

“Huhner’s views on the genesis and treatment of masturbation seem to us to provide a good example of the one-sided approach to psycho-somatic problems which we, in this book, have done our best to avoid. His work clearly reveals the fact that he regards the human organism solely in terms of matter and mechanics. We, who in the Aristotelian tradition continue to regard man as a body-soul unit, are unable to endorse his findings. But we would go further than this, and would say that it is not only a difference in philosophical approach or methodology which causes us to reject his views on masturbation and other sexual disorders. We disagree with him on general grounds, but also on the basis of our clinical experience; in our practice we have rarely come across any gross physical lesion in association with masturbation, and are strongly opposed to the use of physical remedies such as Huhner suggests in its treatment.”

I am inclined to agree with Kenneth Walker in his criticism of Huhner’s one-sided attitude to the subject of masturbation and impotence in general. Masturbation causes no ill effects on the general health, unless it is practised to excess and over a long period. When it does, the symptoms seen are similar to those seen after excessive heterosexual life. On the mind, however, the effect in some persons is more severe and far-reaching. Some men become self-conscious, develop an inferiority complex and feel that they are or may become impotent one day. They become self-centred and prefer solitude to society. In many cases severe neurasthenic symptoms develop.

On the sexual system, masturbation has the same effect as other sexual excesses, namely, “fatigue of the nerve centres,

congestion and subsequent enlargement of prostate, urethral hyperaesthesia, and a tendency to premature ejaculation. Those physical changes may themselves produce a further stimulation to masturbation, so that finally the patient is left in a vicious circle, with a continual urge to obtain relief, and a complete inability to achieve it.... Speaking generally of masturbation in the mature male it may, therefore, be said that any harm that comes from it is the result of the mental conflict that it engenders and the excess that it encourages. The part played by these factors will vary in different patients. In most, the mental conflict completely overshadows any physical disturbances; in a small minority, and then only as the result of excess, the psychological difficulties may be less in evidence than the results."

Psycho-analysts like Stekel assert without reservation that the practice of masturbation is absolutely harmless on the sex organs and health. This is sound to some extent. Stekel says: "According to my observation, the nervous effects of masturbation only occur if the person stops the masturbation. The neurasthenic symptoms are then falsely ascribed to the previous masturbation, whereas they are due to the giving up of the habit." This is a wrong way to express an otherwise sound fact. It may be modified thus: if a man masturbates and forgets all about it, it produces no neurasthenic symptoms. As a matter of fact, it is the neurotic individual who believes all the rubbish written about the evil effects of masturbation and stops the practice that develops neurasthenic symptoms.

Masturbation and Impotence—What is usually seen is that through stress of the sex urge and when heterosexual relief is not possible, many men masturbate, even those who consider the act degrading and sinful. It is such persons who become neurasthenic. In those who consider masturbation as one of the normal and harmless avenues of sex relief, no neurasthenic symptoms or sexual weakness are produced.

The nervous strain on the brain centre is definitely more than that produced by excessive coitus. Blum says: "The masturbatory act supposes a much greater activity of the imagination; the immediate erotic impressions and sensations, which come spontaneously in coitus, must be replaced in masturbation by increased mechanical stimuli and by excessive demands upon the erotic conceptions. All these powerful

accessories to sexual activity, which we receive in normal cohabitation from visual impressions, tactile sensations, kissing, sensations of smelling (perfume) and of hearing, all these immediate perceptions must be replaced with the manual masturbator by the power of the imagination—truly an excess of mental effort, a waste of valuable nervous substance.” It is thus evident why fatigue and neurasthenic symptoms are more pronounced in a man who masturbates to excess than in another who indulges in excessive coitus.

The practice is so common in men that the American physician, Robie, wrote: Ninety-nine out of hundred masturbate; the hundredth won't tell.” I found by questioning about 400 men who consulted me for sex disorders of some type or other, that 384 of them had masturbated at some time or other. The age of the men varied from 20 to 50. This shows a percentage incidence of 96. Among boys such a percentage cannot be worked out, because only those who masturbated were referred to me.

Why I am of opinion that the habit of masturbation does not produce permanent impotence, except of the psychic type and the atonic types when practised to excess (this is temporary), is because I know many persons who have masturbated to excess and are not impotent; also the degree of impotence has no relation whatever to the frequency with which or the period during which masturbation has been practised. Men who have never practised masturbation are comparatively rare. These are usually persons who married at a very early age or who are by nature sexually anaesthetic. Impotence is seen even among these people. Masturbation does, however, produce severe forms of psychic impotence, because the men addicted to the practice are led to believe from literature published by advertising quacks that masturbation must and should lead to impotence.

Causation of Masturbation—Now as regards causation, usually the practice is indulged in to relieve sex tension which may be caused by increased libido from the brain or irritation or stimulation from sex and accessory sex organs. Some young men practise it because they were told that it helped to develop their penis. Others indulge in it when coitus to which they were accustomed is not possible, such as when the wife is absent, ill or pregnant or has ceased to attract them sexually.

The last is not an uncommon cause. I have come across a good number of cases where elderly married men masturbate but do not approach their wives. Their wives have ceased to attract them and they have not the courage or opportunities to attempt heterosexual life elsewhere.

Others take up the habit to supplement their heterosexual life. I know an elderly man, the father of nine children, who had coitus once a week and masturbated once a week. Coitus twice a week did not appeal to the wife and if he did not relieve his sex tension twice a week, he got nocturnal emissions which disgusted him. There are others who resort to masturbation because it helps them to sleep. This is very common among soldiers and sailors. There are also others who, as Stekel says, "are masked paraphiliacs, individuals whose sexual aim is not a woman, or who seek some form of gratification which is subjected to veto. (Sadists, masochists, urolagnists, passion-murderers, homosexuals, etc.). To these individuals, masturbation represents the only adequate form of sexual gratification, because there is always a 'specific pleasure-arousing fantasy' associated with it. They then blame masturbation for their impotency, to be sure with only a certain amount of justification because the habit repeatedly calls forth the specific fantasy and *vice versa*. But masturbation did not create the impotency and in itself is harmless. On this also depends the riddle why one person can so easily give up masturbation, while another cannot. In one person masturbation serves as a substitute for the normal sexual act, but when this is at his disposal, masturbation can never offer him as much pleasure. Another person will not perceive the same amount of libido with the normal sexual act as he would with masturbation, and, under certain conditions, perceive absolutely no libido. He will again and again resort to masturbation because, at the same time, it protects him against his paraphilias."

There is another common cause which is seldom mentioned in medical literature, *viz.*, the inferiority complex that is brought on by the supposed small-size of the man's penis or his imaginary impotency, as when he suffers from constant nocturnal emissions or even from urethrorrhoea. In such cases, the man feels that as he cannot satisfy a woman in coitus he may be subjected to ridicule and humiliation and hence he turns to masturbation and occasionally to homosexual practices.

Treatment—It may as well be added here that threats and punishments do not cure or help to cure masturbation. Rudolf Allers, a Catholic medical psychologist, writes as follows :

“Anyone who has investigated youthful or adult addicts to such practices is aware that they are not depressed and discouraged on account of their sexual habits, but that they are enslaved by these habits on account of their discouragement. There is here yet another example of the vicious circle—from discouragement to defeat and from defeat to discouragement.

“Consequently, all attempts to meet the situation by the use of threats and prophecies of disaster are wholly undesirable; they can only do harm and sometimes inflict injury of the most serious kind. To assure a man that any particular sexual habit will ruin his health only serves to add yet another conflict to the moral conflicts which are already proving too much for him; his discouragement is increased, and new fuel is added to the secret fires which consume him and which he imagines he is fighting. Apart from this, it has long been known that the assertion that health suffers from such practices is quite false. It is a survival from an antiquated period of medical knowledge and arose from inadequate or insufficiently understood observations and varied prejudices which cannot stand examination. The time has come to remove such false teaching from educational literature, and to stamp out the various ‘popular’ writings on this subject. Such threats are occasionally justified on the grounds of their alleged ‘deterrent effect’; this is not only psychologically unsound, but morally objectionable, because the use of falsehood as a means to an end is inadmissible, and can never be of real use in the long run. Here also the principle holds good that it is much more important and more effective to stress the positive than throw emphasis on the negative.”

For young men, advice is occasionally helpful—their sense of will-power should be appealed to. They should be given plenty of other occupations and healthy recreations, allowed to mix freely in the society of girls of their own age. It should be pointed out to them that too much addiction to the practice of masturbation might make them self-centred enough to avoid the society of girls, which would mean aversion to “mating,” and this is abnormal in the young.

Another point that may be impressed on the patient is that a masturbator is not likely to be ambitious and will be content with whatever he can get without effort. He will lack aggressiveness in life and may even be timid. I am speaking of the adolescent addict to the practice and it is here that the cure is most difficult.

As Rudolf Allers has said punishment is of no avail. Restraining appliances do not help to improve will-power and are as useless in curing masturbation, as the pollution rings that were used formerly to cure nocturnal emissions. I saw an extraordinary case. He was a classmate of mine, aged below 20, who used to masturbate during his sleep. He never practised it during his waking hours. His parents used to tie at night round his waist and over the parts, like knickers, a cloth about ten yards in length. During sleep, he used to untie this cloth and masturbate. On waking, he never realised that he masturbated.

The question is often asked whether heterosexual relations will cure the habit of masturbation. In the case of adolescents, this should never be prescribed, not only because of its moral objections but it may be pushing the boy from the frying pan to the fire. In some adults heterosexual relationship would help, unless they are "marked paraphiliacs" as defined by Stekel.

Local treatment may help in some by reducing the congestion and irritation of the parts, but these pathological changes set in only after the habit has lasted for a long time and by then, it has been *established as a habit*. This is the reason why Huhner's line of treatment cannot effect a cure in all cases. As a matter of fact, it is often very difficult to cure adolescent masturbators. They are too young for psycho-analysis but psychic treatment may be of help. During the psychic sleep, suggestions may be put in and this may reinforce their own desire to be cured. Medical treatment is described in the next chapter.

IX

TREATMENT OF HYPERAESTHETIC SEX DISORDERS

General Principles—When a man complains of any disorder of sex, whether hyperaesthetic or anaesthetic, the first step is to ascertain whether it is merely a problem brought on by ignorance of, or imbibing wrong notions as regards, biological facts, or a real disorder. If it is a disorder, it is necessary to find out the causative factor and remove it and if this alone is not sufficient to cure the condition, treatment should be instituted. This may be local, endocrinal or psychic. It has to be borne in mind that psychic symptoms in varying degrees will be found associated with all types of sex disorders and that in some cases no line of treatment except sex relief will be effective. What form this should take will have to be decided by the patient himself. This I have discussed before.

St. Paul has pertinently remarked that it is better to marry than to burn. Osler commenting on this says that the meaning of the term marriage should be left to the patient himself, as often a legal marriage is not possible when one desires it. A biological marriage, i.e., casual sexual relationship, will also be marriage from the medical point of view. But it is not advisable to recommend this procedure in so many words. The advice given by Havelock Ellis on the subject is quoted here as it is well worth serious consideration.

“The physician would do well, when he goes beyond the purely medical sphere in this matter, to confine himself to a clear, wide, and impartial presentment of the issues that are before the patient, leaving to the patient himself the responsibility which must rightly belong to him, of selecting the solution. The physician’s part here is that of a judge charging the jury; he must clear up the issues but not pronounce the verdict. In so doing he may at the same time bring his patient to a calmer and more rational attitude, and will perhaps prevent a rash attempt to cut the knot which it seems impossible to untie.”

When treatment is found necessary, the causative factor would indicate what line it should take, local, endocrinal or

psychic. It is unwise to expect organic types of hyperaesthesias to be cured by local treatment alone or psychic types by psychic treatment alone. A judicious combination of the various lines of treatment would be found necessary and most effective.

LOCAL TREATMENT

In cases of excessive libido, it is usually assumed that the impulse starts from the sexual centre in the brain. To ascertain whether this is so, I have recently been questioning the more intelligent of my patients complaining of excessive libido. I find often that it is more a sort of local irritation or sensitiveness that sets up the libido. Some say that the irritation or stimulation starts in the glans penis, others think that it is somewhere near the prostate. The patients, however, are not definite whether the sensitiveness sets up the libido or after the libido begins these parts become more sensitive. To settle this point I prescribed local applications of an anaesthetic preparation to those patients in whom the glans penis was sensitive and rectal applications of the same to those who were of opinion that the sensitiveness was more in the prostatic region. This line of treatment definitely lessened the libido and also relieved the frequent micturition always seen associated with excessive libido. Even circumcised individuals have reported that sensitiveness of the glans penis accompanied excessive libido. This indicates that circumcision does not cure every type of sexual hyperaesthesia, though it was the fashion to prescribe this operation for premature ejaculation.

Local Applications—The simplest form of local treatment is the application of any local anaesthetic, like cocaine or novocaine, prepared in a greasy or non-greasy form, to the glans penis. The preparation may also be used per rectum or solutions of the anaesthetic, in 2 or 3 per cent. strength, may be instilled into the anterior urethra. These are the most sensitive parts of the sex apparatus and desensitizing them is helpful in all types of sexual hyperaesthesias. In mild cases, this is all the treatment the patient may need, but it must be remembered that, as it is not curative, the application will have to be kept up. I prescribe the proprietary product known as 99-A jelly, prepared in a non-greasy base and delicately scented. It is advisable to apply the preparation about an hour before coitus in premature ejaculation and its effect lasts over

six or eight hours. In nocturnal emissions, it should be applied before retiring for the night. In cases of erection being produced on the slightest provocation, the application is equally helpful and also in cases of increased libido caused by hypersensibility of the sex organs. The jelly should be well rubbed on the glans penis and especially on the corona and on both sides of the frenulum. Ointments made in a greasy base have the merit that they adhere better to the parts applied but they are messy and rot rubber contraceptives.

Urethral Psychorophore and Sounds—Some authorities suggest the introduction into the urethra of the psychorophore, a hollow instrument shaped like a sound, through which water at the required temperature is circulated. The temperature recommended by Kenneth Walker is between 40° and 50°F. in the irritable types of impotence and between 106° and 110°F. in the atonic types. The treatment is carried out for about 20 to 30 minutes daily. Others recommend the passing of cold metal sounds, the size selected being the largest that would pass without discomfort. It is left in for about half an hour. I have found this more helpful in defective erection. These lines of treatment have at least marked psychic effect.

The Verumontanum—Huhner and others, who give much importance to the verumontanum, suggest an endoscopic examination of the posterior urethra and if the verumontanum is found to be congested or swollen, direct application of caustics to it is recommended. I shall let Huhner speak on this subject in his own words:

“I have often been asked how the application of silver nitrate to the verumontanum could possibly cure impotence. To this I must answer that the application of silver nitrate to the normal verumontanum can only do harm, but he who has looked through the modern endoscope and has seen the pathological conditions present can readily understand how the removal of these conditions can have a beneficial effect upon the coital act. I desire especially to emphasise the fact that the treatment is not psychic, although the introduction of the lighted endoscope cannot help having a psychic effect on the patient. The treatment and the good results of the treatment are due solely to the removal of the pathological conditions present. The indiscriminate application of strong caustics to the verumontanum, practised years ago as a cure for impotence,

has deserved the severe censure which it has received, but the rational treatment of the diseased areas which can be distinctly seen through modern instruments is of distinct benefit to the patient.

“One must have considerable experience in posterior endoscopy, however, before he can recognise what is pathological and what is normal. The verumontanum, like the trigone of the bladder, is normally redder than the surrounding parts, and the inexperienced observer is likely to consider the normal verumontanum to be congested or inflamed. The same holds good also concerning its size. We must remember that the normal verumontanum varies greatly in size and shape in different individuals. In the coloured race for instance, where all sexual organs are markedly developed, I have noticed that the verumontanum is much larger than in white persons. I have evolved the following rule as a guide: we must not be guided by the absolute size of the verumontanum, but by its size in relation to the posterior urethra in which it is found. In other words, a verumontanum, which almost completely fills the prostatic urethra, showing little if any signs of lateral sinuses, that is to say, if it almost touches the walls of the urethra on either side, is to be considered considerably enlarged. One can easily appreciate how such a verumontanum must keep on tickling the walls of the prostatic urethra even in the absence of coitus, and also how irritating it must be when rendered more congested during the coital act.

“It must be remembered that the posterior endoscope only shows the pathological condition of the posterior urethra, and that similar pathological states are found in other conditions such as masturbation, satyriasis, etc. In other words, one cannot make a diagnosis of impotence by merely looking through the endoscope.”

I need only repeat, what I said before, that in all my years of practice I have neglected the structure known as verumontanum and my patients are none the worse for it. As a matter of fact, I seldom find the necessity for an endoscopic examination in any type of impotence.

Prostatic Massage and Instillations into the Posterior Urethra—When hyperaesthetic disorders are caused or accompanied by inflammatory conditions of the prostate and

prostatic urethra, massage and instillations of astringents are the lines of treatment usually adopted. The procedure is as follows :

Massage the prostate and the seminal vesicles *gently* with a circular movement and then let the patient pass water. Instillation of the selected solution is then done through an Ultzmann catheter. This fits into any record syringe. About 2 to 3 cc. of the solution is instilled at a time and the drug used is usually silver nitrate. The strength of the solution is from 1 in 1,000 to 1 in 100 and should be such that it produces only a sense of warmth and not smarting or burning. The patient is instructed to retain the solution for about half an hour and to pass water only after that period. The treatment is carried out two or three times a week.

Another solution useful for instillation into the posterior urethra is pykothania blue in 1 per cent. solution. This is so messy that many patients object to it. The following solution may also be used :

Strychnine sulphate	..	..	..	gr. 1
Hydrastine hydrochlor		..	..	gr. X
Aqua distillata	..	..	..	oz. 1

Ft. Soln.

Thallin sulphate solution in 10 per cent. strength is also used for instillation. Some authorities are of opinion that prostatic massage should not be done in nocturnal emissions as it may increase their frequency. When other more effective lines of treatment are available, I see no reason why the prostate should be massaged except when it is enlarged or inflamed.

Other Treatments through the Rectum—In hyperaesthesias, an effective method is to pass a metal prostatic psychrophore into the rectum through which iced water is circulated. This is done daily for about 15 to 20 minutes at a time. The water touches only the walls of the nozzle and not of the rectum. One end of the nozzle is connected with a rubber tube to a douche can and the other end to a bucket kept under the table. With the help of a Y-shaped rubber glass tube, the upper end of the nozzle can be connected to two douche cans, one containing hot water and the other iced water. These can be

switched on alternately. It is a very effective method of treatment but rather tedious. It exerts also great psychic effect. In hyperaesthetic states, suppositories of Belladonna $\frac{1}{4}$ gr. or Morphine sulphate $\frac{1}{4}$ gr. and Atrophine sulphate gr. 1/100 are helpful. Some patients are susceptible to Belladonna and in one of my cases, there was alarming dilatation of the pupils.

ELECTRIC TREATMENT

In the earlier years of my practice, I tried electric treatment in every type of sexual disorders without benefit. As Kenneth Walker and others think that it is of benefit in selected cases, I give the line of treatment usually adopted.

"Electricity is prescribed by the majority of authors who deal with impotence, although they do not agree about the best form in which to apply it. Courtade (1921) recommends the use of a rectal electrode in connection with the positive pole, but, if this is inconvenient, the electrode should be placed on the perineum. The current may be either galvanic or faradic. This he regards as specially suitable for the so-called irritable type of impotence.

"In other cases he directs treatment to the lumbar centres by applying a descending galvanic current to the spine, the positive pole on the cervical and negative on the sacral extremity.

"In the treatment of impotence associated with prostatitis we have found useful the application of diathermy to the prostate by means of a rectal electrode. Electrical bath may also help on account of the general feeling of well-being that follows their use. Electricity in any form appeals to a patient's imagination. It is a magic force, and, since functional troubles are particularly amenable to magic, electricity may be very useful.

"Diathermy of the testicles has also been used in the treatment of functional impotence. By raising the temperature of these glands it is thought that their activity is stimulated and an increased absorption of internal secretion promoted. Whether this is so or not is entirely speculative, but good results have been reported clinically. The treatment can be applied most satisfactorily by the use of a specially constructed chair with a hole cut in the forepart of the seat, and in front of this a

grooved gutter on which the penis can rest. Through the hole the patient's scrotum is immersed in a saline bath connected up with one of the poles of the diathermy machine. Applications should be repeated frequently, at least three or four times a week, and continued over a period of three to four weeks."

ORAL TREATMENT BY DRUGS

Many sedatives are prescribed orally for hyperaesthetic sex disorders, especially in cases of increased libido, those most usually used being the bromides. I find the following combination helpful.

Camphor monobromide	..	..	grs.	120
Sodium bromide	..	..	grs.	75
Lupulini optimi	..	..	grs.	120
Extract Cascara	..	..	grs.	8

Make into 24 capsules.

One capsule 2 or 3 times a day and one at bed time. The dose of the bromide can be increased or decreased according to requirements.

Lupulin relieves the anxiety neurosis. It is advisable, at least in educated persons, not to let them know the composition of the capsules, as some object to take bromides. The capsules have a beneficial effect in hyperaesthetic, as well as in anaesthetic, conditions, such as defective erection. In the latter case, it acts probably by counter-acting inhibitions. It is certainly very helpful in cases of sexual neurasthenia. The following is an illustrative case :

Case XXVIII—A student, aged 19, complained of diminished libido and complete absence of erection. He was initiated to masturbation at about the age of 16. After a few years, he read somewhere of the "pernicious effects" of the habit. He felt that every one about him knew of his practice and developed an inferiority complex. To everything he attributed some motive to humiliate him. For instance, if when the family was at dinner, someone else's food was served before his, or if the *dhoby* brought all his brother's clothes and missed one of his shirts, he thought that the servant or dhoby knowing of his auto-erotic practice wanted to humiliate him. It was a clear case of a guilty conscience causing sexual neurasthenia. The treatment consisted in explaining to him that masturbation was not a harmful habit and that there was no chance

for anyone to know that he was addicted to it. He was prescribed the capsules mentioned above. From the third day, he began to feel libido and had powerful erections. The patient had such faith in this prescription that, a few years later when he had a relapse, he asked me to give him the same capsules.

The bromides act on the nerve cells and diminish their excitability. The various preparations of barbiturates have more or less similar action. In sufficiently large doses, they are hypnotics and induce refreshing sleep and are to be preferred when sleep is disturbed by excessive libido or increased erection or when insomnia makes one think of sex and originates the consequent train of symptoms. They are unfortunately habit-forming and should, therefore, be prescribed with caution. Of the bromides, the most effective appears to be camphor monobromide. A mixture containing sodium, potassium and ammonium bromide is often prescribed by many clinicians in excessive libido. This is given in 20 gr. doses, three times daily, the dose being gradually reduced as the symptoms improve. Kenneth Walker recommends the addition of 5 minims of tincture of opium to the bromide mixture during the first two weeks of the treatment.

It is claimed that atropine sulphate in doses of 1/64 gr. orally, three times a day, relieves congestion of the prostate and posterior urethra. This line of treatment is based on the assumption that nocturnal eneuresis, nocturnal emissions and premature ejaculation have many points in common as regards etiology. For the same reason, tincture of Belladonna is prescribed in premature ejaculation, in increasing doses. The initial dose is 10 minims and this is increased till there is marked dryness of the throat. It is administered half an hour before retiring. Palazolli prescribes eserine in $\frac{1}{2}$ milligram doses, three times daily with meals, other clinicians find tincture of ergot in 15 minim doses useful and others ephedrine sulphate in 1/2-3/4 gr. doses.

Mersels and Boker experimented with ergotoxine in several cases of nocturnal emissions when other measures had failed with some measure of success. Ergotoxine phosphate is said to give good results when injected subcutaneously or intramuscularly daily in doses of 1/120 to 1/60th gr. Vecki and others also speak favourably of this treatment.

Sex hunger is usually compared to food hunger and when a patient complains of increase in appetite, no doctor would

think of prescribing, as a routine measure, drugs to suppress or depress the appetite. Yet this is what is being done in increased libido. In excessive appetite, the correct procedure is to make a thorough examination of the patient and see whether it is due to any pathological condition. If any disease is present, this is treated and if none is present, the patient is left alone, provided his excessive eating does not produce indigestion. This is what I do in increased libido and I feel I am right in my attitude.

OPERATIVE TREATMENT

The simplest and most commonly undertaken operative measure is circumcision. In cases of phymosis alone should circumcision be advised and not indiscriminately in all hyperaesthetic disorders. Kenneth Walker writes: "Minor degrees of phimosis used to be regarded (and are still regarded in some quarters) as a casual factor in masturbation. Circumcision should never be resorted to as a cure for masturbation. If the surgical exigencies render the operation an absolute necessity in a boy who is known to masturbate, it must be made absolutely clear to him that the operation bears no kind of relation to his sexual habit; otherwise he is unconsciously liable to regard genital mutilation as the prescribed penalty for offences against the sexual code, and what the Freudians call 'castration anxiety' is engendered." No other operative measure is known to be useful in hyperaesthetic sex disorders.

HORMONAL TREATMENT

As regards hormones in the treatment of hyperaesthetic disorders, the best is the luteal hormone administered as injection. As was explained in the chapter on Endocrines, this hormone has a desensitizing and devascularising effect on the sex apparatus. If there are prostatic congestion and neurasthenic symptoms, the testicular hormone in 5 mg. doses should be added to the luteal hormone. When luteal hormone is administered alone, the dose is 2 to 10 mg., depending on the severity of the symptoms, for the first three injections, given every second day, and 5 mg. for subsequent injections at increased intervals. About twelve injections should be enough to relieve the congestion and the hyperaesthesia of the parts. When the luteal hormone is combined with testicular hormone,

the dose of each need not exceed 5 mg. The first three injections are given every third day and the subsequent injections every fourth to the sixth day. Even here, twelve injections are sufficient. It may be remarked that the hormones will relieve only the existing congestion and hyperaesthesia but will not prevent a recurrence if the factors causing these are not removed. While giving the injections, the patients should be warned that the luteal hormone may depress libido and suppress erection. This result is not likely to occur when it is combined with the testicular hormone. Whether the luteal hormone only desensitizes the sex organs or whether it also depresses the sex centres and slows the rate of secretions of the testicles, prostate and seminal vesicles is not known. Details as regards indications and dosage are given under the various cases. The frequency of urination seen in cases of enlarged prostate is relieved by luteal hormone administered in 5 mg. doses. Based on this fact, the hormone should be useful in nocturnal enuresis as well. I have found no other hormones useful in hyperaesthetic sex disorders. This line of treatment by itself is so effective that it may be considered as a specific and I seldom resort to any local treatment or drugs for these types of impotence. Treatment by the luteal hormone in male sex disorders has not been worked out to my knowledge by any other clinical worker.

NON-REMEDIAL MEASURES

Exercises—Among the non-remedial measures, are certain exercises which aim at strengthening the pelvic and genital muscles. I have described in detail the various exercises that would improve sex efficiency and cure sex deficiency in my book, *The Art of Love and Sane Sex Living*.

The exercises to improve sex efficiency in the male should consist of breathing, abdominal and pelvic exercises. The breathing and abdominal exercises are not only essential preliminaries to the other exercises but are meant also to prevent the loss of tone of the abdominal muscles and deposit of fat in them. Excessive abdominal fat in either sex interferes definitely with the act of coitus.

It is not proposed to go into the breathing and abdominal exercises but only the specific pelvic exercises will be described.

The first step is to learn assiduously to contract and relax voluntarily the two anal muscles separately and portion by portion. This will bring into action the three penile muscles as well.

The voluntary contraction of the muscles may be practised lying down or standing up. It is advisable to practice in both positions. Patience is required and the practice should be kept up till the desired result is achieved. A good method of learning how to contract and relax the muscles is given below.

Stand straight with the feet slightly apart and contract the muscles of the buttocks till their two 'cheeks' touch each other. This brings the thighs near each other while the knees rotate outwards. Now contract the sphinctor muscles and try to draw the penis upwards by contracting the erector penis muscles.

As a supplement to the previous exercises, practise the following: While passing water, abruptly contract the sphinctor vesici muscle and stop the flow. Hold on for some seconds and then relax.

If the bladder and the rectum are not evacuated regularly, or at least when there is an inclination for evacuation, the anal and the bladder muscles will lose their tone. This loss of tone will affect also the penile muscles to a certain extent.

Improving the tone of the ejaculator muscles by the exercises mentioned will help to delay and regulate the time of ejaculation. Voluntarily contracting and relaxing the anal muscles will exercise the ejaculator muscles very effectively. When ejaculation is on the point of occurring, contracting the levator ani muscles will delay it for some time. It should, however, be remembered that once the process of ejaculation starts nothing can stop it. Well-trained ejaculator and anal muscles can help, therefore, only in *delaying* the onset of ejaculation and that is what is required to prolong the sexual act.

Careful attention should be paid to voluntarily contracting and relaxing the erector penis muscles. It will be found that it is easier to pull up voluntarily an erect or semi-erect penis than when it is in a quiescent state.

Practise voluntary contraction of the muscles standing, sitting, and lying down.

Coital Technique—It may be asked why and how bad coital technique causes premature ejaculation or any other form of sexual weakness. Many men are under the impression that coitus means only penetration, a few movements and ejaculation. This is always unsatisfactory to the wife and often unsatisfying to the man. If long continued, it will also mean hurrying through the whole process like an automaton solely with the idea of relieving sex tension. This may ultimately end in impotence. The following points may be considered as the basic principles of a satisfactory and satisfying coitus.

(1) Sexual intercourse should be undertaken only when both the partners desire it and not be forced on an unwilling woman.

(2) No penetration should be attempted by the husband till the woman responds and her genitals are properly moist. In most women, this is a sign that they are ready for coitus. The more the woman is roused, the more active becomes her co-operation and if she has outlived her shyness, she may even indicate when she is ready for entry. If the partners are lying hugging each other, the female will often show her readiness for entry by hugging her partner tighter or even by herself helping to effect intromission. In women who are slow to be roused with the usual forms of love-play, vigorous rubbing of the copulatory organs and even oral caresses such as cunnilingus may be necessary.

(3) Sexual intercourse should be kept up till the woman attains her orgasm. If the man's staying power is short, the preliminary love-play should be prolonged till she is thoroughly roused and nearing her orgasm. It has to be borne in mind that just as the woman takes longer to be roused, she takes longer also to attain her orgasm.

(4) The thrill and satisfaction in coitus depend not only on the attractiveness of the partners to each other and their full co-operativeness but also on the movements indulged during the act. The movements may be up and down, rotatory or sideways. Both the partners may move simultaneously or one may follow the other. The penis may be pushed deep to the hilt or only half way or only moved between the lips of the vulva. It may be almost entirely withdrawn or half withdrawn and then pushed again. The speed may be varied either when withdrawing or when thrusting in, from slow and deliberate

movements to rapid and piercing strokes. Even in the same coitus, the extent of penetration and withdrawal, the nature of the movements and their speed may be varied. Some men find it helpful to delay orgasm by lying quiet without making any movements after coitus has lasted some time. Each couple has to decide by practice the nature and speed of the movements that will give them the maximum satisfaction, just as in the case of postures, because no position or type of movement gives the same kind of stimulation to all couples. As *Kama Sutra* says :

“About these things there cannot be either enumeration or any definite rule. Congress having once commenced passion alone gives birth to all the acts of the parties.”

(5) It is usually assumed that the early part of the night is the best time for sexual intercourse. This is not the best time from a scientific point of view but is the most convenient for most couples.

In my opinion, the best time for sexual intercourse is after one sleep. The stomach will then be free of food. In case the husband and wife have office or other work to do the whole day, they will be too tired in the early part of the night to indulge in love-play and satisfactory coitus. This is one of the reasons why many men and women who indulge in coitus soon after they retire for the night hurry through the act and omit the preliminaries. With advancing age and in hypogonadism many men have weak or no erection in the early part of the night but notice strong erections towards the morning, when alone coitus would be quite satisfactory. There is nothing unhygienic or harmful in sexual intercourses taking place during day time.

(6) It is advisable to empty the bladder before coitus begins. A full bladder ensures better erection but the coital time will be short. Those who suffer from premature ejaculation should make it a point to pass urine after love-play and before intromission. I know some men who pass urine again after the coital act has lasted some time. This prolongs the coital time.

Educating the Patient in Coital Technique—On this subject the best book is *The Power to Love* by Edwin W. Hirsch. Education becomes necessary in men who are complete novices

in sex and also in certain types of premature ejaculation, *viz.*, men with hypersensitive sex centres. I have found the procedure useful in some cases of psychic premature ejaculation. To some patients, inhibitions and fixations have no meaning. As Hirsch says, "Prescribing a definite course of action for a patient to follow is of infinitely greater help to him in solving his sexual difficulties than any attempt to go into the psychological aspects with him." This is so in the case of the majority of cases that consult general practitioners.

The patient should first be told that he is not really impotent and that his condition can be cured. The following advice outlined by Hirsch should then be given. It often becomes necessary as some husbands do not know the location of the vagina. Recently I had a husband who wanted me to advise his wife to allow a light being kept during coitus, as otherwise he could not effect penetration.

The man and his partner lie on their sides and with his fingers he should locate the clitoris and the opening of the vagina and also the direction of its canal. When he has done this, he moves closer and places his member in the introitus, say an inch deep. At least five minutes are spent in this position. No attempt at penetration should be made in the beginning. Hirsch advises: "It is also absolutely imperative for him not to become demonstrative at this time. He should take a few deep breaths to obtain confidence and relieve tension. After he has rested in this fashion for two or three minutes, he feels that the urge to push the phallus into the vagina is lost and that instead a tranquil degree of pleasantness is perceived. Now the male begins to feel sure of himself and so he withdraws the phallus for a fractional distance and rests again. Our neophyte has completed the first movement without any desire or urge to ejaculate. Secretly he is congratulating himself, for by now he has held the phallus within the vagina for several minutes and he feels that he is the master of the situation, as indeed he is. One might even say that he has acquired coital confidence. A feeling of superiority is beginning to make itself felt. A sense of assurance grips him. Formerly when he inserted, he ejaculated before the penis had been in the vagina a minute. Now by following directions he had kept the firm phallus in the vagina (only partially, to be sure) for a considerable period of time. After a rest for a few minutes, he pushes the phallus slowly forward again for

a short distance. Once again he draws a breath of fresh air through his nostrils quietly and thereby refreshes himself. This procedure is repeated fifteen to twenty times and though he feels an emission may be imminent, he still can control it with ease. But now the female has become intensely desirous, and she draws him tightly towards her, which is her signal that she desires to spend and desires him to do likewise, simultaneously. The male now begins to insert and withdraw quite rapidly, though the depth of the insertions are still shallow. Finally he feels her fingers press into his skin, which is her signal that her orgasm is soon to be effected, and so he too releases his seminal gateways and ejaculates as he forcefully thrusts his phallus along the upper vault of the vagina.

"If during this procedure, the man feels the desire to emit, he should withdraw his organ from the vagina. After a few minutes, the urge to ejaculate would have gone when the penis is reinserted but only for a short distance and the process is repeated."

Hirsch believes that when on the point of ejaculating the perineal muscles should be relaxed and not contracted. "... the male is forewarned that ejaculation will soon take place if the erotic stimuli are not temporarily diminished. To prolong the act of coitus and to prevent ejaculation, the patient, whenever he feels this tension at the base of the penis, should stop all body motion and also all voluntary movements of the penis. Relaxation of these muscles is aided if the male takes several slow deep inspirations through the partially opened mouth. Within a few minutes the spasm of the perineal muscles dies down and the male finds that he can again make slow deliberate motions, resting of course after each stroke, until the tension reappears in the back part of the penis. Once again, he employs the former method of relaxation, and the safety-valve to the ejaculation mechanism is called into play. Thus he can carry on coitus intermittently until he feels that both his mate and himself have enjoyed their full measure of body communion.

"One of the very common mistakes made by beginners in the art of coitus is that when they perceive that unmistakable sensation which precedes orgasm, they try to tighten up the perineal region, thinking thereby to hold in the seminal secretion. Of course by so doing they are aiding the precipitate

ejaculation of semen, because they induce contraction of the accessory muscles of ejaculation, which in turn send stimuli to the constrictors of the prostate and seminal vesicles. Once the seminal gateway is opened, the ejection of semen will proceed without any hindrance."

To continue. When the patient gains confidence and experience, he should insert the penis halfway. "During his next coital session he is told to start by inserting at first only midway, but on the fourth stroke he can slowly permit the phallus to glide in slowly to 'the hilt.' Utter relaxation is absolutely necessary at this stage. Once the plan has succeeded, the rest is easy, provided he does not allow a little success to go to his head. But our recruit must follow directions. Later he tries one-in-three deep strokes, then one-in-two, until finally he has become master of the situation . . . "

The next step according to Hirsch is: At first there are rest periods between half strokes but later the intermittent periods of relaxation are shortened. If he feels ejaculation imminent at any period, he should rest awhile and " . . . can refresh himself with a few breaths of fresh air. Beginners have difficulty in distending their chests with air because of the tonic contraction of their intercostal muscles. But when they do relax sufficiently to emerge from the tense state, they benefit their entire musculature, which in turn fortifies their coital control."

If the man comes up to this stage without ejaculating, the rest is easy and he may proceed to the next step which is described in Hirsch's own words :

"The male who has followed directions and has acquired skill and proficiency in the first three positions will be properly prepared to acquire the art of the fourth position if he proceeds according to the suggestions made here. After the preliminaries have been sufficiently indulged in, he should begin the union from the side position, starting as always by slightly introducing the penis and then gradually progressing. When he feels that he can fully and completely govern the seminal content from the side position, he should roll over on to his mate by helping her twist her body into the new position. Oral stimulation is avoided at first until the male feels secure in the superior position. He should merely hold his lips lightly against her

forehead or cheeks and gently, steadily support his weight, on either of his right or his left elbow and on both knees. In this way his weight is not directly on the female's body as it is in the posture usually advised, which requires the male to rest his weight on both elbows. Often a small pillow under the wife's buttocks raises the angle of the vaginal opening and makes the entry much easier for the male. At this stage neither husband nor wife should attempt any body movement. If one elbow becomes tired, the male may shift to the other side. In this position he can talk with his spouse, besides being able to note and study her expression. Now he is ready nonchalantly to wedge his body slightly forward until the phallus is inserted for approximately the distance of an inch or so. There it is allowed to rest until it has adjusted itself to the new environment. From two to ten minutes may be spent resting at this point. Gradually the deeper levels of the vagina are reached.

"By now the male has acquired considerable coital confidence and is ready to begin stroking the vagina with his firm phallus. First he tries quarter-strokes, then half-strokes, later three-quarter flourishes, and finally the full strokes. If he should be somewhat timid and uncertain of himself, he can withdraw until the head of the phallus is just within the lips and start his movements from this point. After the male has adjusted himself for the new position, he can engage in some interesting and pleasing by-play. He can take a few full strokes and then draw the penis almost out of the vagina and allow a little longer than the usual interval of elapse. From here on, the male may rest his weight on both elbows so that he is suspended directly above his spouse. From this new angle the male descends bit by bit, level by level, down the course until the full length of the phallus rests within the vagina. The first upward stroke taken by the male should be 'high and dry'—that is, the male should lift his body slightly upward so that he may well stimulate the clitoris, which lies at the upper angle of the vagina. Bits of conversation can be exchanged during the resting period which terminates each stroke.

"Frequently wives make the mistake of trying to hurry things. Rapid movements or strokings are of little benefit to either party. It takes a slow, steady stroke to ensure full and complete contact with the clitoris. Many a young man erroneously bases his concept of the coital act on his observations

of animals engaging in sexual contact. Most mammals are precipitate in the act because they are constantly exposed to attack and, therefore, he must complete the act quickly. Man, however, in the privacy of his room, is not obliged to rush. But should the young lover feel that his penis is unable to endure the constant overwhelming storm of sensations, he can elevate his body so that the head of the penis just strokes the clitoris. With short efficient strokes he can readily cause his spouse to experience her orgasm. During the succeeding acts of coitus the male gradually loses his stage-fright and is able to prolong the act. His strokes now are better timed, for he has learned by experience how to conserve his energy whenever he feels that a wave of intense passion is about to engulf him. 'Practice makes perfect,' and before long the male finds that he is complete master of the coital situation. He can take deep strokes whenever he wishes and can completely satisfy his wife."

Coital Postures—Coital postures often help in correcting sex disorders. This subject I have discussed in detail in the *Art of Love and Sane Sex Living*. In premature, ejaculation, the postures adopted should be those where the woman can take the active part, as when she is on top of the man, and also the side position, i.e., when the partners lie on their side facing each other.

Van de Velde very rightly believes that the female partner, if well versed in coital technique and has well trained vaginal muscles, can help in curing certain types of sexual weakness of the male. He says :

"It is necessary to contract the constrictor vaginae with special force in cases where the woman wishes to help her husband to retain the member in her vagina though his erection is incomplete. In these circumstances, the inner parts of levator vaginae must not be set in motion; their action would only expel the male organ (if it had indeed any effect). But the outer part of the levator vaginae may be of great help by their clipping, almost 'snapping,' action.

"The main role, however, must be played by the constrictor vaginae, whose continuous suction not only retains the male organ—provided that the erection has not wholly subsided—but also obtains a certain hold on the root of the penis. This has the effect of hindering the backward flow of blood from the

congested corpora cavernosa and gives the claspings constrictor vaginae muscles still more purchase. And these combined and interacting processes have often great value in coital technique, and, as a result, in the emotional, mental and hygienic irradiations. In normal coitus the too rapid ebb of the man's excitement after ejaculation may be averted and the male organ retained for a while, which is an agreeable and tender finale for the man and often a main factor in sexual satisfaction for the woman, for it tends to equalize the sharp contrast between the sudden cessation of masculine excitement and tumescence and the much more gradual ebb of feminine feeling after the supreme moments. And this 'compensatory' process leads spontaneously to the most difficult of all the four phases of ideal communion, to the epilogue, or afterglow, which so often fails or even repels and wounds the sensibilities of a loving woman, but which may be the most idyllic and deeply satisfying of all. The woman herself may contribute to this consummation by the expert use of her constrictor vaginae muscle....

"A further and most valuable benefit for the mating woman is the prolonging of coitus if her husband has already reached his climax before she has attained hers . . . And the perivaginal muscles are the best agents in bringing an immediate repetition of the act, should both parties desire it. This ability to clasp and retain the male organ in cases where potency is relatively slight or impaired and erection imperfect has often proved the salvation of the marriage tie, and such ability may be acquired by appropriate pelvic exercises . . .

"The levator vaginae muscles will also help if they are healthy in retaining the semen in the vagina after coitus. Healthy muscles would help virgins to endure the first coitus without undue pain by voluntarily relaxing the sphinctor muscle during penetration."

Dickinson writes: "There is a rather frequent condition especially in the early months of marriage, wherein the wife must be the one to make adjustments for depth and direction of penetration in order to avoid discomfort or pain. Or else she needs to place herself in such a way with regard to the relations of the clitoris to his symphysis and her own that she can regulate the rhythm of action and the degree of pressure and length of excursion of this small and important part of her anatomy. This she can usually best accomplish by lying either

between his thighs or across one of them; later, perhaps by sitting across his lap or even by posing her whole weight, impaled as it were, above the pubes. The additional and important advantage of several of these postures is that thus any male who is given to quick emission will usually find himself better able to defer his orgasm, for we may never forget that swift ejaculation is *one of the most frequent and obstinate disparities in marriage*.

"A wife complains that her husband's weight spoils her feeling or her climax. It develops that he places himself in one of the positions which we can call 'full weight' or 'full length,'—and in no other. When direction is given that trial be made of other postures, she is relieved by his supporting himself on his hands (with arms straight), and his knees; or his kneeling upright between her thighs as she lies across the bed with her buttocks at the edge and her feet supported; or with her body raised on pillows lengthwise of the bed; or else she assumes one of the various postures above him. By one or other of these expedients, which one would suppose any pair might have imagined for themselves, she secures a full climax. Perhaps he has a large abdomen or she is halfway through pregnancy. Her lifted hips or his kneeling position solve their difficulties. Throughout pregnancy, however, the rather consistent shortness of the vaginal passage renders still more desirable that posture in which his thighs are outside of hers."

Conclusion—In deciding on the line of treatment to be instituted in any particular case, the first step is to arrive at the causative factor. Once this is known, the treatment is easy. As was mentioned, often more than one line of treatment is necessary and equally often no line of treatment is necessary, except to teach the patient biological facts as regards sex and the sex act and to remove from his mind wrong notions regarding them which he may have imbibed from unscientific literature or from hearsay. Occasionally, it will be found that no line of treatment will benefit and this is usually seen in cases caused by deep-rooted psychic factors.

Unscientific quacks have put on the market innumerable products, oral and for application, and even mechanical appliances to cure sexual hyperaesthetic conditions. These are advertised in such plausible terms as to appear genuine and

they quote or rather misquote the findings of scientists to give their products a scientific garb. The devil can quote scripture to suit his ends and I advise that these products should be shunned. These enterprising money grubbers know mass psychology well and I know some salves advertised which, it is claimed, when applied to the umbilicus or when soaked in cotton and placed in the ear, will not allow the erection to subside till they are removed! It is a tragedy that many men including doctors patronise these products even in the year of our Lord 1943!!!

PART IV

ANAESTHETIC DISORDERS OF SEX

X ANAESTHETIC DISORDERS

XI ANAESTHETIC DISORDERS—(*Continued*)

SEXUAL INFANTILISM.

XII TREATMENT OF ANAESTHETIC DISORDERS

XIII SEXUAL NEURASTHENIA

X

ANAESTHETIC SEX DISORDERS

Anaesthetic disorders of sex are just the opposite of hyperaesthetic disorders and these are defective or absent libido, defective or absent erection and delayed or no ejaculation and orgasm.

These conditions are more serious, because while sex life, even though unsatisfactory, may be indulged in by sexually hyperaesthetic individuals, this is always impossible for those suffering from anaesthetic disorders.

DIMINISHED OR ABSENT LIBIDO

Libido is a physiological phenomenon, just like, say sneezing or watering of the eyes after appropriate stimulation. If a man does not sneeze or his eyes do not water, there is something wrong with him. If libido is absent and cannot be aroused even by appropriate stimulation, it is pathological. In the very young and in the very old, libido may be absent, but at other periods of life it must be present in varying degrees. Complete absence of libido during these periods is, therefore, a disorder, though it is a rare condition. Diminished libido is, however, very common. It may be temporary, some days being less and other days more, or relative, strong libido with one partner or under certain conditions and less or none with another partner or under certain other conditions. In the elderly, libido is naturally less than in the adult.

As in other disorders of sex, the causes of diminished or absent libido may be organic, endocrinal or psychic. There is no known organic cause of defective libido, unless we include under this heading constitutional disorders and other factors causing diminished vitality. After a period of sexual excesses, libido is bound to be less through sheer exhaustion of the sex centres. Endocrine conditioned cases of diminished libido are seen in sexual infantilism, hypogonadism, and, as was mentioned, in the elderly and the very young. The commonest cause of diminished libido are psychic factors. Under this should be included absence of sex attraction of the partner, incompatibi-

lity in temperaments, and many other similar factors and conditions, roughly the opposite of those which create or increase libido. The real psychic factors are inhibitions and fixations, such as fear of infection, detection or causing pregnancy, hatred and so on.

SEXUALITY AND INTELLIGENCE

Opinion seems to be divided as to whether vocation or intelligence has any relation to sexuality. Some authorities think that scholars and stay-at-homes are sexually weak. Furbringer, for example, considers a sedentary life as conducive to sexual weakness. According to Stekel, however, vocation has nothing to do with libido or sexual power. He says: "The scholar diverts himself from sexuality. He does not injure his potency, but withdraws his interest from it. It is incorrect to say that cultured men possess a lesser degree of potency than peasants and labourers. With increasing intelligence, potency also becomes enhanced, but the psychic disturbances of potency become numerous. In the upper strata of society there are highly potent and very many semi-potent men. The disturbance of potency is to be traced not to organic weakness, but always to the influence of inhibitory ideas."

Havelock Ellis differs from Stekel. He says: "The brain and the sexual organs are yet the great rivals in using bodily energy, and that there is an antagonism between extreme brain vigours and extreme sexual vigours, even though they sometimes both appear at different periods in the same individual. In this sense there is no paradox in the saying of Roman Correa that potency is impotence and impotency is potence, for a high degree of energy, whether in athletics or intellect or in sexual activity, is unfavourable to the display of energy in other directions. Every high degree of potency has its related impotencies."

I think there is some confusion in both these statements. If we mean by sexuality sex expression, i.e., the number of coitus a month, the uneducated man has greater sexuality. This is not because his sex urge is greater or his sex power is stronger, but because sex offers him the only avenue for relieving nervous tension. Then again, he has plenty of leisure, no mental strain or expenditure of nervous energy and no psychic inhibitions or

fixations whatever. He, therefore, copulates daily and to him copulation means only achieving his own sex relief.

The educated man expects much of sex, his coitions are more satisfying though he indulges in them at long intervals. If he suffers from diminished libido or depressed virility, it is either because he expends enormous nervous energy in his vocation, or has no time for love. As Stekel says: "And love, to be sure, requires time, and more time. Time is the money of love . . . But whoever allows himself no time for love because he loves time, will flee into a 'time-parapathy,' which is intended to conceal his inadequacy to love." Then again, "Mercantalism, a most important form of the 'will-to-power' through monetary acquisition, leaves scant room for love. For time is money; and money then becomes more important than love. Indeed, the accumulation of wealth may attract to itself all the libido originally destined for love and may become the symbolic substitute for love . . . Love and mercantalism are opposites."

Then again some psychic inhibition or fixation is always noticed in the educated man while these are seldom or never seen in the humble labourer or farm worker. As was mentioned, among the uneducated copulation is merely to relieve sex tension, while among the educated and cultured, the sex act is something more and meant to satisfy an emotional need. We may sum up and say that the intelligent and educated man is more "sexual" than the dullard, his libido is stronger and his sex power greater but there are greater chances of his getting psychic impotency. I am also of opinion that a woman who has coitus with an educated man gets greater satisfaction than one who indulges in the act with an uneducated man.

Diminished Libido Caused by Psychic Factors—The commonest causes of diminished libido are psychic factors. Space does not permit me to enumerate all of them, but the salient facts essential for diagnosis and treatment are mentioned. Libido may be aroused or depressed through any one of the senses. A sexually unattractive partner depresses libido and so also a bad odour, an unattractive voice and other factors jarring any of the senses. A fact which is recognised by every married man, but which he is loth to admit, is that after years of married life, the wife who may have been his sexual ideal at the time of marriage, loses all charm for him, especially if

she has lost her youth, form and beauty through a succession of pregnancies. Women age much more quickly and lose their physical charm earlier than men. It is common to see an Indian wife in her forties looking very much older than her husband. In cases like this, it is understandable why the husband suffers from diminished libido, usually of the relative type. Treatment will be of no avail but the wife might be advised as to how to keep herself fit and recapture her beauty of face and figure by healthy habits, appropriate exercises and with the help of suitable dress and make-ups. Many European women know this and that is why some of them, even in their forties, with grown-up daughters look well preserved and as attractive as on the day they were married. The subject of preserving health and beauty I have discussed in detail in *The Art of Love and Sane Sex Living*.

Some one, I forget who, has said that taking biological facts alone into consideration, it may be asserted that for perfect sex satisfaction of both man and woman, the following is the only course open: A woman should be allowed to have two husbands at a time and the man allowed to marry again after say, 10 or 15 years of his first marriage. To take a concrete example. A woman marries, say at 20, two husbands and in 10 or 15 years, she has really 20 or 30 years of sex life, with two different men. The man marries at the age of, say, 25 and again at 35 or 40 a woman younger than himself. Thus he has also a satisfactory sex life with two different women for 20 or 30 years. The idea underlying the suggestion is obvious.

The real psychic factors that cause disorders of libido are fixations and inhibitions. Fixation is the condition in which the mind is fixed to a person, object or incident, and inhibition is the condition in which one's actions and nervous reactions are restrained by the influence of a particular object or incident or thought. Fixations cause only relative loss of libido, while it is really inhibitions that cause the absolute, and hence more serious, types of this disorder. Among the latter should be included one's moral convictions, early training, emotional make-up, inferiority complex, as when the sex organs are small or when having practised previously masturbation or homosexuality, and similar other conditions. To arrive at the causative factor, patient questioning is required.

A few illustrative cases follow :

Case XXIX—An army officer, aged 42, brought up in a strict Presbyterian family, considered sex life out of marriage a sin. He had never attempted coitus, though he had strong libido. One night he got drunk with some of his companions and visited a prostitute. The next morning he came to me for prophylactic treatment. This was given but the idea that he was infected was fixed in his mind. Repeated bacteriological tests were done and though the results were always negative, he was not convinced that he was free from infection. Later he was posted to a station where he had opportunities of having sex life with non-professional women friends. There was a fair amount of libido and slight erection when he attempted sex activities which he indulged in more to hide his (supposed) impotence than through a need for sex relief. Penetration was possible but soon he ejaculated from a flabby penis. He had no endocrine or other defect, nor was he in a run-down state of health. The causative factor in this case was his belief that he was venereally infected at his first attempt at extra marital coitus which was, according to him, sinful. Here both fixation and inhibition are noticed.

Case XXX—An idle rich, young man was very promiscuous before marriage. After marriage he lived a chaste life for a period when he was always potent with his wife. One afternoon he tried coitus with another woman and was caught in the act by a friend. His erection immediately subsided and he could not complete the act. His wife was away from the station at the time and when she returned a few months later, he found that he had neither libido nor erection. No amount of treatment by hormonal injections or aphrodisiacs revived the libido or erectile power. As a matter of fact, the patient had forgotten the incident with the other woman and it was only during the analytic treatment that the fact was incidentally mentioned by him.

Case XXXI—

A doctor writes :

“I recently came across your article in the *Calcutta Journal of the Medical Association* on the Ambivalence of Sex Hormones. A peculiar case is under my treatment. Last May I sent a man for vaso-ligature operation to a proficient surgeon who has up till now done 74 similar operations. Such operations do not give rise to any sex trouble. In the case of my patient, the libido is less, though before the operation he used to enjoy his wife every third or fourth day. Now he does not wish of his own accord for coitus. When he approaches his wife, he does not get any erection which comes on only if his organs are handled by his wife. I at once referred the case to the surgeon who did the operation and he asked me to refer the case to you.

My point in writing this letter to you is to know in detail, whether according to your article, follicular hormone preparation will do any good to the patient. Excuse me, but I fear whether by giving constantly the female hormone, even in small doses as advocated in your article, the patient will develop any feminine traits, nature, mood or temperament? Already he has had enough of complications after the operation of vaso-ligature and it is only natural that I should think a hundred times before anything new is done in his case."

The operation of vaso-ligature does not give rise to any type of sexual weakness and the case under discussion is, therefore, of psychic origin. As the patient was in another station, psychoanalysis was not possible. Probably the lupulin and camphor bromide prescription would have done him good. The follicular hormone would also have helped by increasing the secretions of the accessory sex organs and reflexly increasing the libido.

A similar case was reported to me of a young man becoming almost insane after vaso-ligature. I was told that the man was looking out for the surgeon who did the operation vowing vengeance on him! Fortunately for the doctor and the patient, the former had left the station.

Case XXXII—A married man aged 48, married 20 years and father of four children, complained of diminished libido, feeble erection and premature ejaculation for the past 8 years. On examination his parts appeared quite normal and the patient said that his penis on erection was $4\frac{1}{2}$ inches in length and $4\frac{3}{4}$ inches in circumference. On going into the history, it was found that just before his sex weakness started he had great financial loss. Apparently it was the shock that produced the symptoms. To add to it, his wife began to get stout from about that time and the patient had found from his previous experience of extra-marital sex relations with servant girls that he was more potent when his partners were thin than when they were stout. Now he had coitus once a month and occasionally got nocturnal emissions. He experienced no libido or orgasm and the premature ejaculation was in no way better even if he indulged in a second coitus the same night.

From the age of 14 to 18, he used to masturbate excessively, even three or four times a day. His first heterosexual relationship was at the age of 16. The patient understood that his diminished libido with his wife was relative, as he felt sex desire when he met thin girls; also that his weak erections and premature ejaculation were due to shock. At that time I believed that the testicular hormone in doses of 25 mg. was a cure-all of every type of impotence. This man received six injections every fourth day and on the days he had no injections, he was asked to use the testicular hormone ointment per rectum. There was a distinct increase in his sex urge but the libido when he approached his wife was still deficient. He got powerful erections at about 3 every morning, but

coitus was far from satisfactory and the ejaculation still premature, though all told there was some improvement. There was no orgasm. The patient then gave up treatment.

Cases of anaesthetic sexual disorders where the causative factors can be traced to the female partner are more numerous than is believed to be possible. Instances are where the wife becoming stout or otherwise losing her sex appeal, her non-co-operativeness during coitus or unwillingness to indulge in it, her pre-occupation with children or household duties, nagging and jealous temperament and so on. Such cases are difficult to diagnose as the patients never voluntarily offer information, unless questioned. In anaesthetic disorders, therefore, it is necessary to get all relevant facts about the wife's temper and temperament.

DEFECTIVE OR ABSENT ERECTION

The anaesthetic disorders of erection are defective or absent erection, having no erection when desired and erection of short duration. By erection of short duration is meant that there is erection when desired, but it subsides before intromission or during coitus without ejaculation. There are also cases which may be termed as capricious erections, that is to say, the man gets erections when he is alone and thinks or reads of sex but when he approaches women he does not have them. All these are psychically conditioned disorders. Without satisfactory erection, coitus is impossible and this disorder is, therefore, of more importance in sex life than even the commoner complaint of premature ejaculation.

The causes of defective erection are endocrinal, organic and psychic. Endocrinal causes are seen in sexual infantilism, hypogonadism and in the later years of life. These cases are easy to diagnose.

Atonic or Paralytic Impotence—The only organically caused type of defective or absent erection, apart from that associated with constitutional disorders, is seen in cases of atonic or paralytic impotence. This condition may, therefore, be explained here. In normal coitus, as soon as the libido is aroused through impulses from any of the senses or through stimuli from the sex or the accessory sex organs, impulses are transmitted by the cerebral centre to the spinal centre. This in turn transmits them to the nerves and muscles of the sex

apparatus and erection results. Intromission now takes place and after a certain amount of coital friction, the impulses from the penis and erection centre pass on to the ejaculatory centre and ejaculation results.

The conditions which give rise to the paralytic type of impotence are excessive heterosexual and auto-erotic practices and sexual excitement without gratification. Huhner believes that coitus interruptus causes paralytic impotence. I know some medical friends who have been successfully using this method of birth control for years and not one of them is impotent. Considering that coitus interruptus is one of the most widely used method of birth control, I should have come across at least some cases of impotence directly attributable to it. This I have not and so I do not believe coitus interruptus causes sexual hyperaesthetic disorders.

If coitus is frequently indulged in, impulses will have to be more or less from the cerebral centre alone, because the seminal vesicles are not full and the stimulation from the penis will also be negligible. This means a great strain on the brain centre. When impulses reach the erection centre at frequent intervals or continuously, it first becomes irritable and later, if the practice is still kept up, exhausted and paralytic. The irritable stage is characterized by the spinal centre transmitting the impulses it receives immediately on to the ejaculation centre, which means premature ejaculation, and the paralytic stage by the centre neither receiving impulses nor transmitting them to the ejaculation centre, in other words, there will be neither erection nor ejaculation. In masturbation, there will not be complete evacuation of the seminal vesicles after ejaculation and so the seminal vesicles get full again soon, transmitting impulses to the spinal centre more frequently. This means increased desire and need for sex relief, which would cause, like excessive coitus, irritable and later paralytic type of impotence. In ungratified sexual excitement, the seminal vesicles remain constantly full, unless relieved by nocturnal emissions, and these send continuous impulses to the spinal centre. In coitus interruptus also, it is said that there is not complete emptying of the seminal vesicles and if it is so, this factor acts in the same way as masturbation.

Typical cases of paralytic impotence are rare and when seen, it is usually in the idle rich who have the means and

time to indulge in sex life constantly. Such men may also give a history of repeated attacks of gonorrhoea. Of course it may also be seen in the newly married man who indulges in coitus 3 or 4 times a day. The confirmed excessive masturbator would also show the condition, but here how much it can be attributed to the practice and how much to psychic factors is difficult to say.

The usual history one hears is as follows: The patient has been noticing that the coitus lasts a shorter and shorter time, till at last there is definite premature ejaculation. Next, he finds that the erections are feeble and that it subsides soon after intromission without ejaculation. Later still, there is neither erection nor ejaculation. All cases do not go to this extreme stage and the progression may be stopped at any stage by removing the cause and giving appropriate treatment if found necessary. The duration of each stage varies in each individual and, according to Huhner, the interval between the first stage and the final stage may be anything between about six months to as many years. In the early stages, removal of the cause and rest from sex activities will remedy the condition without any treatment.

*Defective Erection Caused by Constitutional Disorders—*The paralytic type of impotence should be distinguished from another atonic condition caused by general muscular atony brought on by sedentary habits and indulgence in fat producing articles of diet. Some men are so constituted constitutionally that they put on fat after a certain age. In these cases, there is atony of all the muscles including those of the genital system. Their sex life has not been sufficiently excessive as to classify their disorder as due to excessive venery. Here is an illustrative case:

*Case XXXIII—*A businessman, aged 47, complained of feeble erection and that his coital time was short. He married at the age of 18 and had 6 children. He had never tried coitus with any other woman. He appeared a truthful man and there was no reason for me to doubt his history. As regards his nature, he was of the orchitic type. His office and his family were his sole interests. He ate well and did not take any exercise, nor had he any social life. He did not even go to a cinema. He had coitus almost every night, except when his wife was in menses or after her confinement. He did not consider this a bad or harmful practice.

On examination, there was excessive deposit of fat over his lower abdomen and mons veneris and the anal muscles were relaxed.

Though he had coitus the previous night, semen was seen in the urine passed after massaging the seminal vesicles. The prostate was not enlarged or tender. It was a case of atonic impotence caused by atony of the genital muscles and those of the ejaculatory apparatus. The treatment consisted in injections of testicular hormone, 10 mg., and luteal hormone 2 mg., thyroid by mouth and regulated diet and exercises.

Other organic factors which cause anaesthetic disorders are general constitutional disorders, such as diabetes, anaemia and chronic nephritis. Whether diabetes causes diminished sexual power by decreasing the bodily vitality or has a direct depressing effect on the sex system is not known. Mumps are credited with causing sexual weakness and this is probably due to the fact that occasionally it causes degeneration of the testicular tissues. Blum believes that nephritis causes impotence and I have seen one case of excessive masturbation in a boy of 14 in whom urine analysis showed that he had subacute nephritis. Probably the disease caused irritation of the parts. Huhner does not agree with Blum that nephritis is a cause of sexual weakness. Blum argues this way :

“We find in many textbooks *impotentia coeundi* noted in the symptomatology of chronic nephritis. A specific inhibition of the cerebrosexual centre might be exerted by the urinary poisons retained in the blood, in analogy with other chronic intoxications. I myself have been obliged in many cases, in which the patient complained of diminution or extinction of the sexual need, to declare chronic nephritis to be the cause. It is one of the fundamental rules of diagnosis, that we examine the urine in every case of impotence; we often come in this way, to the great and painful surprise of the patient, to an explanation of the fatal symptom.”

Defective Erection Caused by Psychic Factors—It may be safely asserted that most cases of defective erection are caused by psychic factors. Under this heading should be included all causes producing defective libido. A point of diagnostic importance is that when there is good erection and it subsides during love play or soon after intromission without ejaculation, the cause is always psychic. Capricious and relative erections are also caused by psychic factors. Under capricious erections should be included cases where the so-called early morning or bladder erections are present but not when the patient approaches women. It must be remembered that while the

presence of capricious erection proves that a man is not really impotent, their absence does not mean that he is impotent. The usually accepted view about bladder erections is that they are caused by reflex stimulation from the distended bladder. Stekel, however, does not believe that they are caused by reflex action :

“I know of no greater physiological impossibility than these so-called ‘bladder erections.’ If it were possible to produce an erection by distending the bladder, then merely a retention of urine would be sufficient, and we would have a simple means of curing impotency. Then one need only advise a man to wait until his bladder is distended, and use the ensuing physiological erection . . . The morning erection or that occurring during the last hours of sleep—upon which it depends—has a quite different origin . . . All persons who suffer from psychic impotence are under the domination of inhibitions. Their sexuality is paralyzed through the power and impression of an interdiction. They struggle all night long with this interdiction, and the dream constantly offers means by which an attempt is made to circumvent the inhibitions. But not until towards morning will the dream work have progressed so far that a situation is found where the dreamer may live out his sexuality.”

That Stekel's enthusiasm to prove the influence of the mind on bodily functions often carries him off his feet is apparent when we realize the physiological fact that erections are stronger when the bladder is full, only coitus with a full bladder causes early ejaculation. I am definitely convinced also that women get more sexual stimulation when their bladder is full and this fact may be taken advantage of in cases when they are slow to get their orgasm. According to Stekel, even night emissions are caused by the same psychic causes as those that cause morning erections. On the other hand, it has to be admitted that there is some point in Stekel's view, as that alone can explain how a man who is not impotent in the organic or endocrinal sense does not get morning erections. This is definitely due to psychic inhibitions. Then again, the bladder erections are more pronounced in the early morning than at other times of the day or night, when at most there is only slight stiffening of the penis.

Another point of diagnostic importance is that defective erectile power is associated with diminished libido when the causative factor is endocrinal. In organic cases, it need not necessarily be so. In psychic cases, the libido may be diminished or excessive, often the latter. Space will not permit me to go into all the psychic factors that cause diminished erection which are, inhibitions when it is absolute and fixations when it is relative or capricious. One causative factor, however, may be mentioned and that is the fear of impotence, and, though it may appear contradictory, this is often associated with excessive desire. For instance, a man may desire a woman very much but when he approaches her, he finds he has no erection or the erection is so feeble as to make penetration impossible. Such cases are very common. Here the man fears whether he will be potent when he is about to achieve the bliss for which he was waiting for. "The idea 'I am impotent' in itself already acts as a pernicious auto-suggestion. On the next attempt, the idea already appears before the act. The man asks himself: 'Will I be potent this time'? He doubts it and fears ridicule; this doubt and fear act automatically as still stronger inhibitions. The further course may be such that either the fear and doubt become stronger and stronger so that a classical case of psychic impotency develops, or the person concerned meets an object which stimulates his libido to such a degree that all inhibitions are overcome and fear and doubt are unable to compete against a strong impulse; then we have a cure." Cure may occasionally be effected in such cases with alcohol which has the power to overcome inhibitions.

When coitus is attempted against moral convictions, erection may be absent. I know a very virile elderly man who can have coitus at any time and with any woman unable to get an erection when he attempts it with virgins of tender age. This is due to a moral revulsion against seducing young girls.

Some illustrative cases are given :

Case XXXIV—A married man, aged 27, frantically telephoned to me recently asking for an immediate appointment. I had seen him a year before when he brought his wife for being fitted with a diaphragm pessary. She had one child. This time, he said he was impotent. It appears that he tried intercourse the previous night with a woman whom he has been desiring for a long time. He had intense desire but there was no erection. He stayed with her the whole night but could not have coitus. He felt humiliated.

The next morning he had a very satisfactory coitus with his wife. He wanted to know whether I would give him some medicine so that he could have coitus with his friend whom he was meeting again that night.

I asked him to what he attributed his lack of erection. He said that probably it was because he was a bit drunk and had no dinner. I explained that was not possible, because he was with her the whole night. He confessed that he had never before made love to any other woman but his wife and that this was his first extra-marital adventure; that he was scared of his father (who was also his official superior) knowing of his escapade; and that this took place in the block next to his home. This explained the absence of erection. I suggested that he dropped the matter. He said he would after one successful coitus, as otherwise his friend might think he was impotent. He was not educated enough to understand what psychic factors were and so on. I made him understand that as he was able to have intercourse that morning with his wife, he could not be really impotent and that if he approached his friend with full confidence, he would be successful. I told him that no medicine was necessary.

He met his friend that night but she was in her menses. Two days later he telephoned to inform me of this and that she was leaving the station the next morning. If he did not have coitus with her he said, he would feel he was impotent. This was true and so I advised him to have coitus with the help of a sheath and again assured him that as he was not impotent, he would be successful. He telephoned the next morning, that he was fairly, but not fully, successful. The woman is returning in a month's time and so I asked him to see me a few days before she was expected.

Case XXXV—A young man, who belonged to a poor family but was ambitious, passed through his college course in India and went to England to study for higher examinations with the help of funds from a charity trust. He had strong libido but felt that giving way to his 'animal' desires would thwart his ambitions and spoil his career. An obliging classmate persuaded him to have intercourse with her. While having coitus, it struck him that he was starting on the downward path to ruin and immediately the erection subsided. After this, he repressed his sex urge and gave up all thoughts of women.

He returned to India, got a lucrative job and married a fairly attractive girl. Three days after marriage, he saw me, distressed that he has not been able to have intercourse because of poor erection. The thought that coitus would be detrimental to his career was still implanted in his subconscious self and acted as an inhibition. After two days of analytic treatment, he was able to consummate marriage, though not very satisfactorily. He reported two years later that though his erection often subsided during coitus, his wife had a baby and was expecting another.

Case XXXVI—A young medical man allowed himself years ago to be a passive agent in sodomy. Recently, he was taunted by a friend as being effeminate. He was small-made and his sex organs were small. All these three factors made him feel that he was impotent. He had libido and often had erections in the mornings. He fell in love with a young girl and wanted to marry her, but was not sure of his potency. When he touched her, though he had desire he had no erections. The girl was educated and would not have objected to having premarital relationship. One night, while he was staying in her house, he took courage, went to her room and woke her up. To his distress he found he had no erection. He felt humiliated and wanted to commit suicide. He was given analytic treatment. His confidence in himself returned and he visited a massage institute and had a long coitus with one of the inmates.

Case XXXVII—A civilian, who was known to have had affairs with many women, got married to an exceedingly pretty girl but on the wedding night he could not get an erection. Repeated trials the same night and succeeding nights proved futile. He had no inhibitions and there was nothing wrong with his health or sexual system. The case was diagnosed as one of fixation and to ascertain its nature, the details of his past sex life were gone into. He confessed that before marriage, his bearer brought girls to his room after he retired for the night. To ascertain whether this procedure might be the fixation in his case, he and his wife were advised to sleep in different rooms, and the latter, being co-operative, agreed to visit him after he retired for the night. The experiment was entirely successful and he needed no treatment.

Case XXXVIII—An engineer, aged 38, married 11 years and father of two children consulted me about his inability to have sex life with his wife. Going deeply into the history, it was discovered that after the birth of the second child four years previously, the husband and wife by mutual consent agreed to give up sexual life. The wife has now begun to demand coitus and he finds that he is completely impotent. On further questioning, he confessed reluctantly that he was having homosexual relationship with men and boys employed under him. He would not go into details as regards this, but it may be safely assumed that he started the homosexual practices long ago and that it might have been at his suggestion that his simple wife agreed to give up sex life. I asked him point blank whether he would give up homosexual practices but he was not prepared to do so. I knew that it was useless to treat his heterosexual impotency. Such cases are rare but homosexuality as a cause of relative impotency must be borne in mind.

Case XXXIX—A doctor writes: "My patient is a rich man of 26 years of age, strong, stout and plump. He gives no history of venereal infection. He began his sex life at the early age of 16. From 16 to 20 he had irregular connections occasionally with the aged wife of his motor driver. At the age of 20, he married and

indulged daily in sexual intercourse. After a year the wife died and for three years he kept a mistress. Three years later he married again, then also he had daily intercourse. A year afterwards happened a climax in his sexual appetite. He had during that year about two or three intercourses every day with different women, often even four to five connections. Now he gets very weak erections and these also are only for five or six days, at a time. His libido is still the same but because of the feeble erection he can have coitus only once a week or a fortnight."

This is a clear case of paralytic impotence brought on by sexual excesses. His doctor wrote to say that he had already given him massive doses of testicular hormone without any benefit. What the doctor did not do was to have ordered complete rest from sex life, a holiday in a healthy resort and a general tonic. No amount of testicular hormone will whip up a tired or paralytic spinal centre, especially as the patient was attempting sexual intercourse daily during the treatment. The luteal hormone would have reduced the hyperaesthesia of the prostate and posterior urethra and toned up the sex muscles.

Case XL—A retired Government official aged 70, wife 65, and father of ten children, the eldest of whom was 43 years old consulted me for feeble erection. The erections were progressively feeble for the last eight or nine years. The last coitus he had was five years ago. Libido was normal and he was well preserved for his age. He passed water three or four times at night but had no nocturnal emissions. The parts were normal and there was no appreciable enlargement of the prostate. He wanted to know whether anything could be done at his age to improve his erectile power. An advertising quack had assured him that sexual rejuvenation could be effected if the capsules and injections prescribed by him were taken, a course of treatment costing Rs. 300/-. I explained to him that at his age it was difficult to guarantee any cure, but substitution therapy with testicular hormone by injections in small doses or in the ointment form per rectum might help. The patient did not try the treatment.

Case XLI—A man aged 43, married three times, consulted me for loss of erection. The third wife he married 10 years ago when she was 14 years old. There were three children by this marriage, the last child being three years old. He was a debauchee from a very young age, having had three attacks of gonorrhoea and one attack of syphilis. He was also a confirmed drunkard and showed at the time of examination tremors of the hand and other signs of chronic alcoholism. His erections were feeble for the last four months. On the rare occasions he got a fair erection, it subsided on intromission without discharge. On examination the parts were normal but the prostate was enlarged and tender, so also the posterior urethra.

The man was very keen to have his potency restored and was prepared to spend any amount of money for the same. It was

explained to his doctor that it was a difficult case as the man had completely shattered his health by dissipated habits. He was prescribed injections of Vitamin B-1 and desoxycorticosterone. As expected, the alcoholic symptoms improved. His libido was normal all the time. He was then put on a course of testicular hormone combined with luteal hormone, 10 mg. and 5 mg. respectively. Later he was put on a course of testicular hormone combined with follicular hormone, 5 mg. and 1 mg. respectively. By mouth he was prescribed tablets of strychnine nitrite. There was marked improvement in all the symptoms.

Case XLII—A man aged 28, married a month, consulted me for feeble erection and severe aches over his lumbar region. He confessed that, in his opinion, his condition was caused by sexual excess. From the day he married, he had coitus 2 or 3 times a day on an average, often even 4 and 5. On my asking why he did not stop sex life for a few weeks, he said, "The wife would not hear of it," and suggested that I might have a talk with her. I asked him to bring her over which he did. She was an aggressive sort of person and wanted me to treat her husband for sexual weakness and not to dictate to her about the frequency of her sex life. I told her point blank that he was not sexually weak and that his present weakness was caused by her immoderate demands for coitus. When a husband and wife, who were deeply in love, were in the same bed, what else could one expect, she asked? I suggested their sleeping on separate beds. She retorted and said, "we did not get married to sleep on separate beds." I knew the situation was irremediable as long as the woman took this unreasonable attitude and though I pitied the husband, I refused to take up the case.

Case XLIII—A man aged 48, wife 38, married 2 years, complained that he had not yet consummated marriage, because his erection subsided before intromission. He had never indulged in auto-erotic practices or touched any woman before his marriage. His libido was never strong but he had nocturnal emissions once a month. He was in a fairly well-to-do position and his mother suggested that he should marry and raise a family. That was the reason he married.

He belonged to a type often seen of a trustworthy clerk with no ambition or aggressiveness, truthful and intensely religious. The woman selected for his wife belonged to a poor family, an orphan, who was brought up by an old uncle. She had to work all her life and had no time to think of sex or love. I interrogated her and examined her. She was a virgin, and if her husband knew nothing of the technique of coitus, she knew less. She said he had never tried to make love and even when she took courage to do so, he did not like it. Occasionally, once a month or so, he would approach her with a semi-erect penis and ask her to lie on her back with her thighs and legs bent at the hip and extended upwards. He would then attempt penetration and when he could not succeed, he would go back

to sleep. I asked her whether she could not stimulate him or suggest to him some other more satisfactory posture. She said that her husband was of the old fashioned type who believed that women knew nothing of sex and should take no initiative in this matter.

The man was rather reserved and when I tried to speak to him about coitus and how it should be indulged in, he showed a disinclination to learn or discuss such matters. He wanted to know whether I could make him potent by hormonal injections. I suggested that he should first read some book like *The Art of Love and Sane Sex Living* and then come back to me. I have not seen him again.

XI

ANAESTHETIC DISORDERS (*Continued*)

DELAYED OR ABSENT EJACULATION

Delayed Ejaculation—Delayed ejaculation, also known as *ejaculatio tarda*, is comparatively rare and most men consider it an asset. Ejaculation is delayed or even absent usually at the second and subsequent coitus in the same night. When the libido and (or) the erection is weak, the coital time may be long. Then again there are individual variations. These are all physiological factors. In this connection the reader is advised to read Chapter II in which is discussed how long a satisfactory coitus is supposed to last. I do not know of any organic and endocrine cause of delayed ejaculation. Psychic causes operate very commonly and these are absence of attraction for the partner or her non-co-operativeness during the act, lack of satisfactory adaptation, and consequent friction, between the copulatory organs and some subconscious dislike or even hatred for the partner. In these cases, treatment is of no avail.

Delayed ejaculation may be relative. Some men have a satisfactory coital time with their wives, while they ejaculate early or even prematurely with their mistresses. Delayed ejaculation should be differentiated from coitus reservatus or *Karessa*, a contraceptive measure. Dickinson writes of coitus reservatus: "This means prolonged intercourse accompanied by varied degrees of excitement, with orgasm for the woman but none for the man. He experiences gradual subsidence of feeling. The woman may elect to forego orgasm also. The procedure has been exalted by certain writers as the last word in the art of love under the names of *Karessa*, *Zugassant*, *Male Continence*.

"Concerning this practice we possess clinical evidence covering thirty years in a group that grew to three hundred persons. This community was a social-religious experiment, with *reservatus* taught and generally adopted as the standard method of birth control in the presence of plural marriage of every man and every woman, the young being trained in its technique by the older members. Although sex relations

averaged two or three hours, every second or third night, yet competent medical and gynaecological examination at the end of the experiment revealed no apparent harm among this selected group of people living under favourable circumstances."

Absent Ejaculation—Not uncommonly, men complain of having no ejaculation during coitus. This is a commoner condition than delayed ejaculation. The secretions of the penile glands are in some men so profuse as to be mistaken for semen and these cases are difficult to diagnose except with the aid of the microscope. It is also necessary to ascertain whether the condition is relative, whether the man never ejaculates or ejaculates on some occasion or with some women and not on other occasions or with other women. The patient should also be questioned as to whether he gets nocturnal emissions and ejaculates after masturbation or homosexual practices. Such variations are all examples of relative absence of ejaculation and their cause is always psychic factors, inhibitions or fixations.

It was mentioned that after repeated coitus, a man may not ejaculate but this is physiological. If a man complains of absolute absence of ejaculation, the cause is organic or endocrine.

The chief organic cause is some obstruction in the ejaculatory passages. It was mentioned that in atonic types of impotence there will be no ejaculation but in these cases there will be no erection as well. In sexual infantilism there may usually be no ejaculation. Here the cause is endocrinal.

Absent ejaculation should not be confused with discharging small quantities of semen, oligospermia. This condition will be described under Sterility. It should also be distinguished from *coitus obstructus*, also known as *coitus saxonus*, a method of contraception by which the discharge of semen into the vagina is prevented by applying pressure at the root of the penis when ejaculation is about to begin. The semen is thus forced back into the bladder from where it is subsequently voided during urination.

It is not difficult to arrive at the causation of absent ejaculation. It is important in sterility and not so much in coitus, except that it necessarily means absence of orgasm. In organic cases, the treatment is to remove the obstruction in the seminal

passages and in endocrine cases, hormonal therapy should be instituted. A case of absent ejaculation caused by psychic factors is given.

Case XLIV—A professional man, aged 28, wife 26, married six months, consulted me for sterility. His seminal discharge was only a drop or two and this contained no spermatozoa. The case was diagnosed as oligospermia and he was put on injections of the testicular hormone and desoxycorticosterone acetate, 25 mg. and 5 mg. respectively. The injections were given on alternate days and in all he received 12 injections. At the end of the treatment, the quantity of the semen showed only a slight increase, 0.5 cc., and this also contained no spermatozoa.

His history was that he could indulge in coitus for any length of time and stopped the act only when his wife got repeated orgasms and was tired out. He discharged a small quantity of fluid but was not sure whether he got any orgasm. The patient volunteered the information that he often got nocturnal emissions the same night he indulged in coitus, when the quantity of semen discharged was more and its consistency thicker. More instructive was the statement that the 'throbbing' of the penis noticed during emissions (often he woke up while ejaculating) was quite different from that noticed on the completion of coitus. This made me doubt the correctness of my diagnosis and I decided to examine the discharge which he passed during sleep. This was not easy as it was discharged on his pyjamas. A piece of this was cut out, soaked in 15 cc. of saline solution and the fluid examined microscopically. Two to five dead spermatozoa per microscopic field (1/6 objective) were found.

That the spermatozoa were dead was natural under the circumstances, but the interesting point was the man had healthy sperms in his nocturnal emissions but none in the ejaculate after coitus. It was now certain that the case was psychic, and so details of his marital history were gone into. After persistent questioning, he admitted that though he had great admiration for the mental and other qualities of his wife, she had no sex attraction for him whatever. Further details he would not give. The possibility was that this was a marriage contracted for financial or social reasons, to the principle of which he objected. There was, therefore, an unconscious revolt which manifested itself by his not ejaculating. He was a difficult man to be subjected to psycho-analysis, as having read various scientific and unscientific books on sex, he thought he knew more on the subject than the doctors. It was, however, explained to him that he could become a father provided he ejaculated during coitus. This had not the desired effect and so he was given by injection 5 mg. of the follicular hormone and asked to have coitus ten hours later and bring the ejaculate for examination. The quantity of semen he produced was 2.0 cc. and the sperm count 69,300,000 per cc. Motility was good in about 15 per cent. This was not bad as

the examination was done 12 hours after discharge. He was keen on having a child and the convincing proof that he could be a father apparently made him get over his subconscious antagonism to his marriage partner. He ejaculated now at the end of the coitus and two months later reported that his wife was pregnant. He and his wife did not require any other treatment.

This case should prove a warning to doctors about diagnosing all cases of absent spermatozoa as due to oligospermia. It is usual for doctors and pathologists to ask patients to have intercourse in their rooms in order to get fresh specimens of semen for examination. Through nervousness, many men do not get an erection, while others, though able to indulge in coitus, do not ejaculate. Before arriving at a diagnosis of oligospermia, it is necessary to make sure that the fluid discharged is semen and not secretions from the penile glands.

ABSENT ORGASM

Absent orgasm is not of much practical importance. Many men do not know what orgasm is and not even one in a hundred that consult me complains of this disorder. Usually they say that they do not enjoy coitus. This, when analysed, will be found to be caused by mental preoccupation at the time of coitus, absence of sex attraction for the partner, lack of her co-operation during coitus, or great disparity between the sizes of the copulatory organs, *e.g.*, a thin penis and wide vagina, and similar other factors. If we accept the theory that orgasm is caused by the impact of semen against the walls of the posterior urethra, we have to consider that absence of ejaculation from whatever cause would mean absence of orgasm. Some psychic factors would be found to be the cause of most cases of absent orgasm.

INFANTILISM

Infantilism and hypogonadism cause sexual anaesthesia and these subjects may as well be discussed in this chapter. Infantilism may be general, sexual or emotional. In general infantilism, all the bodily systems are infantile, while in sexual infantilism, the sexual system alone is infantile. In emotional infantilism, all the systems including the sexual system are fully developed, only emotionally the person is infantile. Sexual infantilism is caused by deficiency of the testicular hormone and here is a profitable field for endocrine

therapy. In this condition there may be libido and erection but most often there is no discharge of semen, the sex organs are under-developed and the male characteristics, such as growth of hair on the face, in the axilla and over the pubes, are absent. The accessory sex organs, the prostate and the seminal vesicles, are rudimentary. The body contour and fat distribution often resemble those of a woman. Breasts may be well developed.

Emotional Infantilism—Emotional infantilism is seen usually among those who have been pampered in their childhood by their parents. A large proportion of these “come from fathers who begot them in their old days and out of joy wished to prepare a golden childhood for their off-spring. But there is a great danger because then these children as adults will always look backwards, will always yearn for the period of eternal pleasure and the so-richly bestowed affection. They can never rid themselves of infantile sexuality. Among impotent men can be found a large number of such eternal children . . . Many an impotence is a persistence of the infantile state. The impotent individual feels as though he were a child. He does not want to be a man.”

Cases of emotional infantilism, though rare, are not uncommon. Emotionally infantile men are selfish in their love, difficult to please and would prefer women older than themselves as wives, because they would want their partners to ‘mother’ them. If such men come to doctors for consultation, they would probably only say that they are not potent with their young wives or sweethearts. A little tactful questioning would bring out the real nature of the complaint. The only possible line of treatment is psycho-analysis.

Sexual Infantilism—Typical cases of sexual infantilism are easy to diagnose but there are a good number of intermediary and mild types which are not so easy to diagnose. I am inclined to classify under this heading those cases in which the penis and testicles are small in big-sized man. The body is well proportioned as regards all its organs. Why should the sex organs alone be small in proportion to the rest of the body? The more common condition seen is, the penis alone is small while the testicles and the accessory organs are normal. All such cases are due in my opinion to some developmental defect during the foetal stage and difficult to be remedied after adulthood. Possibly the adrenals have something to do with this

un-understandable developmental upset. Before adolescence is established, I am confident that it is possible to increase the size of the penis and testicles by injections of the male hormone. Unfortunately such cases do not come for treatment at the pre-pubertal age. Cases illustrating sexual infantilism are given below.

Case XLV—The most marked case of sexual infantilism I have come across was that of a married young man, nineteen years old, with penis and testicles as infantile as those of a boy of six years of age. The length of the penis on erection was $2\frac{1}{2}$ inches and he had no pubic or axillary hair or on the face. The distribution of fat in the pubic region and over the breasts was feminine in type but not markedly so. General development corresponded with his age and his weight was 120 lbs. Physically and mentally he was an adult. He reported that he used to indulge in coitus with his wife, a hefty wench of 17 years of age. This statement was not supported by the wife. He was put on testicular hormone injections of 25 mg. In five months he had 1,500 mg. and at the end of this period, the penis on erection was $4\frac{1}{2}$ inches, one testicle became markedly enlarged, though the other showed only slight enlargement pubic hair appeared and nocturnal emissions occurred occasionally. To see whether the addition of gonadotropic hormone in the treatment would accelerate the rate of his sex development, he was put also on injections of this along with the testicular hormone. The only noticeable improvement was that his night discharges became more frequent. The prostate and seminal vesicles were still infantile. It was decided to have his semen tested but all that he could produce by masturbation was a few drops of urine.

The patient gave up treatment for seven months when he reappeared. There was no retrogression in the size of his sex organs. He was put on injections of testicular hormone 10 mg. and 1 mg. of follicular hormone, every other day. In all, he had 41 injections. Erections became progressively stronger and more turgid. Penis on erection now was five inches and he had half a dozen fairly satisfactory coitions with professional women. The interesting point is that in spite of the large doses of the hormone administered, there was no decrease in libido or erectile power, showing that in sexual infantilism androgens and estrogens exerted no inhibiting effect on the pituitary gland. (See photographs.)

For certain domestic reasons, the patient divorced his first wife by mutual consent and married again. He now gave up treatment. After he began his regular sex life, I have not seen him, otherwise I could have seen whether the regular sex life brought on any further growth of his sex organs. The patient's semen was examined on various occasions during the duration of the treatment.

The report is given :

Date	Quantity of Semen	Consistency	Sperm per cc.	Motility	Abnormalities of the body
8-6-41	1.0 cc.	" Watery "	Nil	—	—
25-6-41	0.4 cc.	Thinner than cream	Nil	—	—
31-7-41	0.7 cc.	Thinner than cream	Nil	—	—

It will be noticed that there were no spermatozoa in the semen. It is doubtful, whether in this case the seminiferous tubules could have been made to secrete spermatozoa by any line of treatment. In not a single case of complete absence of spermatozoa have I been able to induce spermatogenesis by any combinations of hormones.

Case XLVI—A young man, aged 27, was engaged to a girl and six months later broke it off without giving any reason. Later he wrote to her to say that he was not a normal man, as he had no facial hair or pubic hair and never had seminal ejaculation. His voice resembled to some extent that of a woman. The feminine type of fat distribution was markedly present. Otherwise, mentally and physically he was well developed and quite efficient in his profession. His sex organs were small for his size, slightly underdeveloped. He was prescribed injections of a gonadotropic hormone prepared from pregnant woman's urine. At that time the powerful synthetic testicular hormone was not known. After six months of treatment he had his first nocturnal emission. There was no appreciable increase in the size of his organs or change in the fat distribution or in the timbre of his voice. Hair was perceptible on the face but not enough even for a monthly shave.

He was married to the girl he was engaged to and I lost sight of the couple for seven years. One day his wife turned up complaining of symptoms of sexual neurasthenia. It appears that though they had a child, the marriage did not turn out happy. The wife's story was that her husband could give her no sexual satisfaction. She was hyper-sexual and in my opinion was addicted to vulvar masturbation. Moreover, he was extremely jealous and hot-tempered. I sent for the husband and had a talk with him. As I had not made a note of the case, I did not remember what the original size of the penis was but when I saw him this time, it looked normal and he said it was about six inches on erection. He was quite satisfied with his sexual powers and said that he had other sex affairs and no woman complained of his lack of virility. He was a self-centred, self-willed and argumentative man and difficult to handle. With great patience and tact, it was extracted from him that his wife expected prolonged love-play, even lasting an hour, and when at last he attempted coitus he ejaculated early. He was confident that his wife got her orgasm once or twice during the love-play and he could not understand what cause she had to grouse. He turned down all suggestions to be treated.

I lost sight of them for another three years when the husband turned up again. The wife was again pregnant and he said that he felt perfectly fit sexually. His only complaint was that his breasts resembled those of a girl of about 16 years of age. Here again I do not remember what the size of his breasts was ten years ago when he first consulted me. His voice was just as it was before and there was not much improvement in the growth of his facial hair. On examination, I found that his breasts appeared to have glandular tissue and was not sure whether treatment with testicular hormone would reduce their size. I suggested to him to consult a surgeon as to whether operative interference would help. If it would not, injections of the male hormone might be tried. I have not seen him since.

Case XLVII—A boy, aged eight, was brought to me for opinion. His penis on erection was $\frac{3}{4}$ of an inch in length and the scrotum looked like hypertrophied labia majora and the testicles were as small as peas. His physical and mental development corresponded with his age, except for nocturnal enuresis. He was put on an ointment of testicular hormone to be rubbed on the genitals twice daily and by mouth thyroid gland tablets. After six weeks of treatment, the scrotum filled out and the testicles were twice the former size. Curiously enough nocturnal enuresis stopped, possibly due to the action of the thyroid gland. The penis was $1\frac{1}{2}$ inches on erection. His father was advised to continue the treatment.

Case XLVIII—Patient aged 27, married one year. Physical health very satisfactory. Penis and testicles are of the small size. Erections unsatisfactory and staying power poor. Diagnosis: mild case of sexual infantilism. From 5th January to 18 February, he had 12 biweekly injections of the testicular hormone, 25 mg., and then they were given weekly. The sex organs became slightly bigger or rather fuller. Erections were much better, so also staying power but the coital time was not sufficiently long to satisfy the wife. Six injections of the luteal hormone 5 mg. were then given on alternate days and then three injections of 10 mg. Staying power was markedly prolonged and sufficiently long to satisfy wife. Six further injections of the same were then given every fourth day. Erections and staying power became very satisfactory, a fact which was confirmed by the wife.

The success achieved in this case makes me put forward the suggestion that in cases of feeble erection and poor retentive power associated with *hypogonadism*, an initial course of the testicular and follicular hormones should be followed by a course of the male and luteal hormones.

HYPOGONADISM

The term is self-explanatory and when it occurs in elderly persons it is a physiological phenomenon. The signs and symptoms noticed are, defective libido and erection, thinning of the

pubic hairs and increase of fat over the mons veneris and breasts. Defective libido may, however, be relative and an attractive partner can often bring it to the normal pitch. As regards defective erection, there will not only be decreased stiffening of the organ but also the action of the erector penis muscles will be feeble.

Hypogonadism is occasionally seen in adults and here the aetiology is more difficult to explain. It is the usual fashion to attribute such cases to excessive venery or masturbation. I do not agree with this view and I think that it is possibly due to some developmental defect. The signs and symptoms in adults are more or less the same as those in elderly persons. Patients are often indefinite as to how long the condition existed. All that they may say is that they have been noticing the sexual powers to be waning progressively for some months or years. I have questioned many such patients but I have not been able to associate the beginning of sex activities very early in life, even when carried to excess, with hypogonadism. Curiously, cases which I designate as those of male virilism, do not show the *physical signs* of hypogonadism.

It was mentioned that the small size of the penis in big-made men might be due to a developmental defect. Other defects caused by hormonal deficiencies are absence of hair on the face, especially on the chin and over-development of the breasts. I have tried in such cases without making the least impression, injections of the testicular hormone, anterior pituitary hormone, gonadotropic hormone and even the female hormone. In my opinion these cases are incurable unless taken up round about puberty.

VENEREAL DISEASES AND IMPOTENCE

Venereal diseases cause occasionally hyperaesthetic conditions, such as chordee and mild types of priapism, but not anaesthetic disorders except of the psychic type. This aspect of the question has already been described. According to Max Huhner, "In spinal syphilis mild priapism has been observed accompanying in-co-ordination of the movements of the legs, girdle pain and hyperaesthesia of the integument of the abdomen and back, all the symptoms being cured by anti-syphilitic treatment."

As regards gonorrhoea, many men including doctors, believe that it causes impotence. This belief is wrong and Max

Huhner aptly says, "If every man attacked with gonorrhoea would become impotent, for a while at least, it would not only greatly limit the spread of the disease but would also be a powerful deterrent of illicit coitus." Gonorrhoea causes hyperaesthetic conditions through its irritative action on the anterior and posterior urethra and the prostate. The treatment in these cases is the same as that for gonorrhoea.

PERVERSIONS OF THE SEXUAL INSTINCT

Perversions of the sexual instinct may be absolute or relative. In absolute cases, very little can be done by treatment, at least the general practitioner can do very little to help. This subject should, therefore, find no place here. Relative perversions give rise to relative types of heterosexual impotence. Even here treatment is often of no avail, except for the patient to be informed of the nature and the causative factor of his condition. The commonest perversions are fetichism and homosexuality and next in order come sadism and masochism. Minor forms of these are seen in most men and it is only when they make heterosexual life difficult or impossible, the sufferers come for treatment. The only point that may be emphasised here is that in all cases of impotence where the cause is obscure it is best to ascertain by tactful questioning whether there is any element of perversions in the patient. It has to be borne in mind that most cases of fixations can in a way be considered as fetichism.

XII

TREATMENT OF ANAESTHETIC DISORDERS

General Principles—The general principles of treating anaesthetic sex disorders are more or less the same as those of treating hyperaesthetic disorders, *viz.*, ascertaining the causative factor and treating it. It has also to be decided whether the condition is only a problem or really a disorder and whether any treatment is necessary at all. The analogy between food hunger and sex hunger was explained under hyperaesthetic disorders and it should hold good in anaesthetic disorders as well. If a man has no appetite at all and cannot eat food, it should be pathological, but if a man has decreased (comparatively) appetite, the common sense procedure would be to ascertain whether any pathological condition is causing it. If none can be found, it may be normal for him or normal for his age. If the amount of food he eats is enough to keep up his health and his decreased appetite is not causing any other constitutional disturbance, no treatment is required. This should hold good in deciding whether an anaesthetic disorder needs treatment.

The psychic symptoms accompanying anaesthetic sex disorders are more pronounced than those accompanying the hyperaesthetic types and may in some men be alarmingly serious. They may even think of committing suicide. The psychic symptoms alone should not be taken as a guide to the seriousness of the condition. The treatment is by local, endocrine or psychic therapy.

LOCAL TREATMENT

If anaesthetic sex disorders are caused by pathological conditions of the sex and accessory sex organs, local treatment is indicated. For instance, when hyperaesthesia of the prostate gland and posterior urethra is the causative factor, treatment is on the same lines as described under hyperaesthetic disorders, *viz.*, prostatic massage and instillations of astringents into the prostatic urethra. The cold sound and psychophore, especially the former, would be found very helpful in defective erection. The electric treatment described under hyperaesthetic disorders is claimed to be beneficial.

The other methods of local treatment advocated are applications of rubifacients or irritants to the penis and the use of the vacuum pump. There are hundreds of salves and application remedies advertised by unscientific quacks which have no therapeutic value whatever. The way in which local applications can act is by inducing hyperaemia of the penis. If the remedy is strong, it will cause irritation and even inflammation of the penis. I tried in two cases, the following application suggested by Robinson.

R/					
Camphor	..	..	..	..	grs. X
Oleo resin capsici	..	..	..	..	gr. II.
Olei sinapis	..	..	..	..	M. II.
Tincture cantharidis			..	..	M. X.
Petrolati	..	..	..	..	Oz. II.

A sexually normal young man and an old man aged 68 suffering from hypogonadal impotence were selected for experiment. In the young man the application produced severe smarting, the irritative type of erection and frequent micturition, while in the hypogonadal case, it produced no other effect but a sense of warmth in the penis and a slight increase in its turgidity. Apart from the psychic effects, I do not think this line of treatment has any merit or should be encouraged.

The Vacuum Apparatus—A question that is often asked is as to the advisability of using the vacuum pump for defective erection and increasing the size of the penis. Most advertising quacks prescribe it in almost all sex disorders including premature ejaculation. The principle of the vacuum pump treatment is that it improves the circulation of the blood in the part to which it is applied. In psychic cases of defective erection, it may be found helpful by its psychic effect. In cases of sexual infantilism, it helps to increase the size of the penis when combined with endocrinal treatment. In all other cases it is perfectly useless though hundreds of this apparatus are sold every month by the so-called sexual specialists.

In the earlier years of my practice, when reliable hormonal products were not available, I tried applying on the testicles a cup attached to the vacuum pump. The idea was to increase the vascularity of these glands and thus stimulate their secretory

function. The results obtained were difficult to evaluate and often it was impossible to differentiate the direct physical benefit from that produced by psychic factors. No appreciable increase in the size of the testicles was noticed but my *impression* was that this line of treatment is of benefit in cases of hypogonadism and is certainly to be preferred to diathermy suggested by Kenneth Walker and described in Chapter IX. The latter may injure the delicate testicular tissues, while the vacuum cup can produce no harm. In sexual infantilism, this treatment is useful when applied on the penis and testicles. The electric treatment recommended by various clinicians are described in Chapter IX.

OPERATIVE TREATMENT

Vasoligature—I have no experience of operative methods in the treatment of sexual disorders except vasoligature and this I have found of no benefit whatever. It helps only in this way, viz., it removes the nervousness of the patient about impregnating the woman and so when the disorder is caused solely by it, the condition is cured. Here are Kenneth Walker's views on the subject :

"Attention was first drawn to the effect of vasoligature on the sexual functions by the classical experiments of Ancel and Bouin, and later by the work of Steinach (1920). The main thesis put forward by these investigators was to the effect that ligature of the vas is followed by an increase in the interstitial cells of the testicle and a heightening of sexual desire.

"It is no easy matter to assess the value of vasoligature in the treatment of sexual difficulties. Fourteen years ago one of us attempted to do so (Walker, 1924), and there has been no reason since to alter the opinion expressed at that date. The results of vasoligature are capricious. When benefits follow the operation they usually take the form of an increase in bodily and mental vigour, and very seldom is there any heightening of sexual powers, at any rate when the operation is carried out, as it usually is, on elderly men showing signs of premature senility. Our opinion is, therefore, that vasoligature has only a very small, if any, place in the treatment of impotence. Even when benefits appear to have resulted from the operation, the factor of suggestion can never be excluded, for any operation on the genital organs specifically performed with the intention of increasing potency is likely to have a good result."

The same author speaks of the effects of vasoligature in sexual hyperaesthesia thus: "For extremely severe and unresponsive cases, bilateral vasoligature has been performed. This procedure, while it cuts off the secretion coming from the testicles, does not affect that supplied by the prostate and vesicles, so that emissions may still persist after it has been carried out. We have had one patient under our care on whom the operation of bilateral vasoligature had been performed with at first only partial benefit so far as his emissions were concerned. Subsequently by the adoption of additional measures the prostatic emissions yielded to treatment. Whether he would have responded to these had the operation not been performed, it is impossible to say. As an alternative to this operation, a temporary cutting off of testicular secretion may be obtained by placing a silk ligature round the vas without dividing it. This operation is said to have the advantage that the patency of the vas can be restored at a later date should this be desired."

Dickinson says in his pamphlet, *Sterilization without Unsexing*, that twelve elderly men of more or less the same age and with identical symptoms as regards lack of potency were selected for experiment. In six of them, bilateral vasoligature was performed, while in the other six, skin incisions were made which was then sutured up without doing vasoligature. The percentage of men who showed signs of rejuvenation (jumping over chairs, etc.), was the same in both the groups. This proves that the operation is of benefit only from a psychic point of view.

The operation of vasoligature, also known as vasectomy, is now done only as a contraceptive measure. It is performed under local anaesthesia and the patient has not to lie up in bed. After the vas has been located and "fixed," an incision is made over it. The vas is then cut about an inch from the epididymis and a small portion removed. When the operation is done for contraceptive purposes, only the upper cut end is ligatured, but when rejuvenation also is aimed at, both the upper and lower ends are ligatured. When the lower end is ligatured, the secretion of the testicle is dammed back into the seminiferous tubules and this is believed to stimulate the interstitial tissues to produce larger quantities of the male hormone. When only the upper end is ligatured, the testicular secretion is poured into the tissues of the spermatic cord from where it is absorbed.

Testicular Grafting—The operation of testicular grafting, chiefly associated with the name of Voronoff, was once widely performed and well advertised. This was at a time when potent hormonal products were not available. The selection of the donor is difficult, so also the operation. It is, moreover, expensive and the benefits claimed have not been noticed by unprejudiced observers. It appears that in Vienna, a surgeon bought a testicle from a virile young man and grafted it on an old man. The operation was said to have been remarkably successful. The doctor was prosecuted for removing the testicle from the donor and fined. The present belief is that the effect of the operation is merely psychic and better results can be achieved by implantation of compressed tablets of the testicular hormone.

Other Operative Methods—Kenneth Walker recommends in defective erection the plication of the bulbo-cavernous and ischio-cavernous muscles. I am quoting the details as given by Kenneth Walker: "On the assumption that failures in erection may be due to poor erectile power of the bulbo-cavernous and ischio-cavernous muscles, Lowsley (1936) has recommended an operation on these structures. Briefly, this consists in tightening them up by the insertion of sutures. The operation is carried out as follows:

"The patient is placed in the lithotomy position, the perineum having been shaved and the skin adequately prepared. A two-inch incision is made in the mid-line over the bulbous urethra, the posterior extremity of the incision not being carried back further than the central point of the perineum. Two short lateral incisions are then made from the posterior extremity of this, so as to form an inverted Y. After the skin and subjacent fatty layer have been incised, Colles' fascia is opened accurately in the mid-line and dissected back so as to expose the bulbo-cavernous and ischio-cavernous muscles. Care must be taken while carrying out this dissection to avoid injuring the posterior scrotal nerves, for if these are cut an unpleasant cold feeling is noted in the lower part of the scrotum for some weeks afterwards.

"For the approximation and tightening up of the muscles, Lowsley found that ordinary catgut was unsatisfactory, and employed chromicized ribbon catgut instead . . . For the introduction of the suture material, an aneurismal needle may be

employed. Two or three figure-of-eight stitches approximating the opposite ends of the bulbo-cavernous muscles are inserted, care being taken to tie them sufficiently tight. Since it is the anterior portions of the bulbo-cavernous muscles that alone encircle the penis proper it is important to place the anterior stitch as far forward as possible in order to tighten up these fibres. Colles's fascia is next approximated, and the skin closed without drainage.

"Lowsley claims that of 14 cases of impotence so treated 9 were cured. Of the 5 failures, 4 noted some improvement in erectile power but insufficient to bring about a cure. Terence Millin (1936) reported 5 cures out of 8 cases. One of the chief difficulties attendant on this operation is the difficulty of deciding what are suitable cases for it. Both Lowsley and Millin agree that psychopathic patients should not be selected, and Lowsley also states that elderly or fat patients whose muscles have undergone fatty changes should be excluded. The most suitable patients for operation are, in his opinion, those who have suffered from some perineal trauma or from some previous inflammatory lesion."

I feel that by proper exercises and regulated mode of life and other lines of treatment, the perineal muscles can be made to function properly in most cases without the operation described. Kenneth Walker does not give details of the symptoms complained of by the patients who were benefitted by the operation. If he had, it would have been easier to decide whether the operation was really necessary.

TREATMENT BY DRUGS

From time immemorial, doctors and chemists all over the world have worked incessantly to produce a product which when administered by the mouth would increase sex powers and cure impotence, just as eagerly as alchemists strove to convert baser metals to gold. Hundreds of preparations believed to be effective are described in the literature of all nations. Most of these, if not all, are now known to have no scientific value whatever and those that produce any appreciable effects are dangerous irritants and poisons. The actions of some of the commoner products now prescribed are described.

In this connection the terms aphrodisiacs and anaphrodisiacs are used. The former are products which stimulate or

increase sexual desire, while the latter are those that depress it. E. V. Lymn (1938) writes: "There are no drugs which are specific for these purposes, and none that will certainly produce the desired effect. Any stimulant to the central nervous system, either directly (caffeine) or reflexly (cantharides), will have a tendency to promote heightened sensibilities, and on the other hand, sedatives (bromides) will blunt them; but the appearance of a positive effect in either case cannot be certain or even probable."

Yohimbin is an alkaloid obtained from the bark of a tree that grows in South Africa and believed to act on the vasomotor nerves by producing improved circulation and promoting the flow of blood in the genital organs. It should, therefore, be helpful in defective erection, though it is widely prescribed as an aphrodisiac in decreased libido. Dr. Waugh and Abbot (1928) maintain that its "aphrodisiac effect is strictly limited to the stimulation of erection and producing congestion of the testes with, inferentially, an increase in their secretion. It is not a drug to aid the seducer. When desire is present but erection is imperfect or absent, *Yohimbin* is the remedy indicated."

Apart from improving the vascularisation of the sex organs, *Yohimbin* is believed to have also a direct action on the erection centre in the spinal cord. *Yohimbin* is, therefore, not an aphrodisiac but a drug helpful in the atonic types of impotence. It is also useful in defective erection associated with sexual neurasthenia. In the former case, abstinence and suitable pelvic exercises should at the same time be advised. Large doses sometimes produce serious symptoms, such as vertigo, palpitation, gastric pain, loss of appetite, insomnia, etc.

Damiana is an American drug and once believed to possess great aphrodisiac and tonic properties. Recent experiments show that when administered alone, it has little or no aphrodisiac effect at all. Many of the so-called sexual tonics contain *damiana*, phosphorus and strychnine or *nux vomica*. This combination is found useful when impotence is associated with general nervous prostration or exhaustion of the sexual nervous centres.

Cantharides, when administered internally, has no specific action except irritating principally the alimentary tract and

kidneys. The inflammation of the urethra and bladder it sets up produces considerable pain (strangury) and this causes reflex stimulation of the sex organs and frequency of micturition. The urine may be blood stained. Cantharides has often been used in the past as a diuretic, aphrodisiac and emmenagogue. Its popularity has, however waned, after numerous instances of poisoning; in reality the effects produced by this drug have never been enough to justify its administration, except for dinresis, which can be accomplished more safely in other ways. Years ago, there was a belief that when cantharides was administered in chocolates to girls, it was easy to seduce them. The sexual stimulation, if any, is purely reflex and caused by the irritation of the bladder and the drug has no actual aphrodisiac action.

Cannabis Indica has been used as an intoxicant in all Eastern countries from pre-historic times. It is known by a variety of names, such as hashish, bhang, ganja and charas. "A therapeutic dose of cannabis gives a peculiar psychic intoxication, in which there is dreamy semi-consciousness with varied hallucinations. Ideas are transmitted so erratically that all sense of time and distance disappears. What are thought to be the happenings of a day may take place in a few seconds, and movement to a near object may seem an extraordinarily long journey. The thoughts are generally happy and more or less absurd, but occasionally they involve anxiety or fear. The movements are apparently purposeless and often ridiculous, even to the patient. The sensibility to pain is much lessened, as is also the sense of touch. Ultimately the condition changes to a normal sleep, from which the individual awakens in a few hours, with little or no after-effects except from very large doses. Even with the latter, there is no real danger, as poisoning is very rare."

Cannabis Indica is believed to increase libido by acting on the nerve centres, and more possibly by counteracting inhibitions like alcohol. Bartholow (1928) prescribes it in organic impotence combined with ergot and nux vomica. In India, a confection of it made with butter is sold as an aphrodisiac under the name of *majun*.

Phosphorus acts as a powerful stimulant on the nervous system and has the advantage that it produces no local irritation. It is, therefore, a good tonic and restorative in neuras-

thenia and nervous debility caused by sexual excesses, overwork or anxiety. Its effect is more marked when administered with nux vomica and damiana. Zinc phosphide, in doses of 1/20 to 1/3 of a grain, is a good form to administer this drug.

Strychnine, the alkaloid of nux vomica, acts through the central nervous system. It renders the spinal centres more sensitive to external stimuli and also stiffens muscles. This is its therapeutic role in impotence, viz., to increase the tone of the penile muscles, especially in the atonic types of impotence. Kenneth Walker is of opinion that strychnine is chiefly of use in cases of diminished libido associated with weak, ill-sustained erection. It may be prescribed alone or combined with phosphates. When administered alone, Huhner suggests that the nitrite or sulphate in doses of 1/30 to 1/20 of a grain, is to be preferred and given every 2 hours on the days when intercourse is likely to take place, say, at 3, 5, 7, and 9 p.m. I have not seen strychnine increasing libido, except through its tonic effect on the nervous system. It is certainly useful in increasing the stiffness, and sustaining the erection, of the penis. The prescription should be made out by reliable chemists as overdosage will give rise to acute strychnine poisoning. I saw one such instance in my practice.

Gold is believed to exert a specific influence on the sexual system. It is used in various forms in the Ayurvedic and Unani systems of medicine. Gold "acts as a powerful stimulant; and if taken frequently, will prevent the decline of the sexual power. In men, marked aphrodisiac effects are produced; in women increased venereal desire and augmentation of the menstrual flow are observed; in young boys it is useful especially in atrophy of the testicles. It is of great service in impotence dependent upon inability to obtain an erection, or when there is deficient glandular action. Dr. Bartholow recommends auric preparation in diurnal seminal losses, weak and inefficient erection, inability for the sexual congress due to irritability of the sexual organs and in sterility dependent upon amenorrhoeas, chronic metritis and coldness. For nocturnal emissions resulting from masturbation or excessive venery, gold has been tried with success, but in cases where there is plethora of the sexual organs with irritability, it increases the frequency of nocturnal emissions."

Recent researches have not proved that any of the benefits mentioned follow the use of gold. In the earlier years of my practice, when for want of reliable hormonal products I had to depend on organic medicines, I used to prescribe gold in diminished libido associated with weak or ill-sustained erections without much appreciable benefit. The preparation used was the chloride of gold and sodium in $\frac{1}{8}$ to $\frac{1}{4}$ gr. doses made into the form of pills. The following combination is of help in some cases of diminished libido seen in sexual neurasthenia :

Auri et sodium chloride	..	..	grs. II
Zinc phosphide	..	..	grs. II
Ext. Nux vomica	..	..	gr. I
Ext. Damiana	..	..	grs. xii

Make into 12 pills, one after each of the principal meals and one at bed time.

Opium in small doses acts as an aphrodisiac. Kenneth Walker says : "It is well known that the smoker of opium and the eater of hashish have erotic dreams and experience a period of heightened sexual desire; but these actions are by no means invariable, and the risks of addiction would in any case outweigh any conceivable benefit that might derive from the administration of such dangerous drugs." I have no experience of this drug in the treatment of sex disorders.

Cocaine is erroneously believed by many people to be an aphrodisiac. It causes profound changes in the central nervous system, depending on the dosage used and the method of administration. "The effect is to stimulate with later paralysis. The intellectual and motor centres are first affected, as shown in greater thought transference, increased ability to do work, abolishment of fatigue, drowsiness and hunger, and a general feeling of well-being. This soon passes into depression, inco-ordination, narcosis and cerebral convulsions." Its use is not justified. I know cases where men have taken it themselves to increase their sexual power or administered it to girls whom they wanted to seduce without achieving their purpose.

Belladonna has been advocated in nocturnal emissions and other hyperaesthetic conditions. In small doses it is believed to have a beneficial effect in elderly persons who have become

impotent through sexual excesses, i.e., in persons whose genital muscles have become relaxed. It is prescribed in the form of tincture in 10 to 20 minim doses or as extract in $\frac{1}{4}$ to 1 gr. doses.

Alcohol is useful chiefly in nervous patients as it allays nervousness. In large quantities, it is helpful in psychic impotence because it overcomes the patient's inhibitions and to a less extent his fixations. It is a stimulant in optimum doses. What this is, is difficult to say. The quantity taken should induce a sense of general well-being, mellowness and joviality without causing depression or irritability. Beer is believed by many men to prolong coitus, others think that a small quantity of whisky mixed with beer has a greater effect. The effect of beer, whisky or any other form of alcohol varies in different individuals and each one should select that which suits him best. To those who are accustomed to alcohol, it has no special aphrodisiac effect, and impotence is as common among them as among teetotallers. It should be remembered that dipsomania is a cause of premature sexual senility.

If any aphrodisiac effect is desired by those who are accustomed to the daily use of alcohol, the form might be changed. That is to say, a man accustomed to whisky may take brandy or gin the day he desires increased aphrodisiac effect. The belief that cigarette or cigar ash when dropped into alcohol produces special aphrodisiac action is unfounded, though widely prevalent.

Benzedrine—Kenneth Walker says that in patients who do not react favourably to alcohol, benzedrine may be tried. This is a drug that has the "reputation of removing inhibitions and is sometimes taken by medical students before entering for an examination. This drug has been given more particularly to very reserved men who seemed incapable of letting themselves go during intercourse so that sexual feeling never became sufficiently intense to set in action the ejaculation centre. So far, benzedrine has not proved any more successful than alcohol in liberating these men from themselves." I have begun to use this drug recently. It certainly produces a sense of general well-being but no other effect I have noticed so far. It produces insomnia at night when taken late in the afternoon.

It is said that in the Ayurvedic and Unani systems of medicines, there are many well-tried and powerful drugs that are helpful in anaesthetic sex disorders. This may or may not be true, but very few scientifically controlled reports on them are available.

ENDOCRINAL TREATMENT

The principles behind the hormonal treatment were enunciated in Chapter V. A few important points may be recapitulated. The male hormone erotizes, or increases the erotization of, the brain centre. It increases the secretions of the testicles and the accessory sex organs and also improves the blood circulation of the sex apparatus and the tone of the genital muscles. The follicular hormone has more or less similar effects and, in addition, increases the peristalsis of the genital muscles and the sensitiveness of the entire sexual system. Its action is irritative, unlike that of the testicular hormone. When both the hormones are used in combination, the stimulating effect is greater and the irritating action less.

In decreased libido, the hormones act not only by increasing the sensitiveness of the brain centre to stimuli, but also by setting up reflex stimuli from the increased secretions and sensitiveness of the sex organs. Even when decreased libido is caused by minor inhibitions and fixations, the hormonal treatment may help, as the increased erotization of the brain centre may overcome the depression associated with these factors. In hypogonadism and decreased virility seen in elderly persons, the testicular hormone is used as substitution therapy. In atonic types of impotence, the follicular hormone should not be used. The correct procedure in such cases would be to administer first the luteal hormone alone or combined with *small* doses of the testicular hormone. This treatment should be kept up till the hyperaesthesia and irritation in the sexual system have entirely disappeared. Then treatment with the male hormone in small doses or combined with small doses of the follicular hormone should be given but only in cases when the erection is still defective in young and middle-aged persons.

Testicular hormone by its interaction on the other endocrine glands improves the general health and is thus helpful in impotence associated with decreased vitality. If there is marked

physical asthenia and impairment of mental powers, the testicular hormone should be administered combined with the adrenal cortex hormone. In cases of obesity, thyroid gland products should be administered in addition to the testicular hormone treatment. It was explained how the testicular and follicular hormones act in delayed or absent ejaculation, even when caused by psychic factors.

Some observers claim that all these results can be achieved by the anterior pituitary hormone or anterior pituitary-like hormone. Theoretically this is possible but the little experience I have of this line of treatment does not make it possible for me to advocate it.

DIET AND VITAMINS IN SEX DISORDERS

Any balanced diet that would improve the general health and not produce obesity is useful in sexual weaknesses. Testicles of goats, onions, honey, eggs (especially of pigeons) and certain vegetables like drum sticks and nuts and spices like nutmeg, cloves, cinnamon, cardamom, ginger, long pepper and similar other articles of food are believed to increase potency. The diet should also contain the various vitamins in sufficient quantities.

A diet deficient in various vitamins produces inanition and inanition during prepubertal life results in "general arrest of sexual development, delayed puberty, under-development of the external genitalia, and suppression of spermatogenesis . . . As a rule, sexual libido and reproductive ability are maintained during the early stages of inanition but are gradually lost as the physical debility increases. Levels of inanition which have no effect upon the testes may result in decreased production of the male sex hormone, and consequent atrophy of the prostate and seminal vesicles, in the rat."

This statement can be accepted as the modern view on the subject though it is difficult to reconcile it with the fact that the poor who are under-nourished are notoriously prolific and seldom complain of sexual weakness.

The role of vitamins in the treatment of impotence is not well understood, except in the case of Vitamin E, which is believed to be efficacious in cases of sterility in the male and female.

I once attempted to work out the linkage between hormones and vitamins. Want of time and sufficient clinical material made me give up the attempt. The impression I gained was that clinically Vitamin A had many of the properties of the follicular hormone, Vitamin D of the testicular hormone, Vitamin C of the luteal hormone, Vitamin B1 of the adrenal cortex hormone, and Vitamin E of the anterior pituitary hormone. As an example, it may be mentioned that Vitamin A is therapeutically effective in pruritis vulvae and similar other disorders of the genitalia just like the follicular hormone, Vitamin C in haemorrhages like the luteal hormone, Vitamin D in dysmenorrhoea like the testicular hormone, and so on. I prescribe these products to patients who cannot afford treatment with hormones. The vitamin treatment is cheaper though more prolonged and it is worth while for clinicians to explore this field of therapy.

NON-REMEDIAL MEASURES

The non-remedial measures for curing cases of anaesthetic sexual disorders follow more or less the lines described in Chapter IX. These are exercises, coital postures and encouraging co-operativeness of the female partner before and during coitus. The various exercises described earlier in the book which improve the tone of the pelvic muscles are equally beneficial in anaesthetic disorders. Kenneth Walker says: "Any measure that increases the general health of the body and tones up the muscles is likely to increase sexual vigour. Indeed, there would appear to be some connection between the tone of the muscles of the thigh and sexual intercourse, for it is well-known that the gait of those who have recently indulged in sexual excesses is often of a staggering nature and associated with a tendency of the knees to give way. Moreover, certain savage dances, somewhat resembling the Rumba, in which the thigh muscles play an important part, are known to have a stimulating effect on the sexual impulse."

This statement is true to a great extent because some primitive tribes indulge in an orgy of venery after certain festivals during which they dance for hours. I have seen that certain pelvic exercises that suggest coital movements increase or create libido in the frigid female.

As regards coital postures, those that give a full view of the naked body of the female partner and those in which she can take the active part are most beneficial. In many cases, merely varying the posture usually adopted would increase libido and consequently the erectile power. As Kalyan Malla says in *Ananga Ranga*, "Monotony begets satiety and satiety distaste for congress, especially in one or the other . . . I have in this book shown how the husband, by varifying the enjoyment of his wife may live with her as with thirty-two different women varying the enjoyment of her and rendering satiety impossible." This is excellent advice for couples who have been married for a good number of years.

The co-operativeness of the female is most important. Stekel says that he has never met a man who was in love with his wife impotent. I shall go a step further and say that an experienced woman can make any man, even if he is sexually weak, have coitus with her whenever she likes. I know a friend of mine who was made to copulate by a woman with her four times in just over an hour. I know also innumerable cases where the prudery or indifference of the wife deprived the husband of erection.

"Women who always find something to criticize in their husbands, who too obviously display their mental superiority, ridicule their husbands or do not recognize their vocational accomplishments; women who praise their relations to the skies and run down those of their husbands, often have to pay for such behaviour with an impotency in their husbands. The impotency then corresponds with a desire to punish her: it represents a sort of marital 'passive resistance.' Often this impotency precedes marital quarrels and disharmonies, and then the collapse of the marriage or love affair is blamed upon the impotency, when as a matter of fact the impotency was already the first symptom of a collapse."

In cases of impotence, it is necessary to ascertain this factor, as it may be the cause of the disorder. Even when impotence is caused by other factors, the co-operativeness of the wife is most important in the prognosis. If the wife is sympathetic and co-operative, there is greater chance of curing the husband's defect than when she is unsympathetic or scoffs at him. To the unsympathetic wife should be explained the nature of her husband's disorder and that no cure would be

possible without her help and co-operation. She should be made to realise that impotency is a most humiliating experience to a man and creates always an inferiority complex. This becomes more if the wife is unsympathetic. She should, if necessary, simulate satisfaction and achievement of orgasm even if the husband's coital time is short or coital technique bad, also assure him that lack of sex life is not worrying her.

A few other minor factors may be mentioned. The husband and wife should occupy separate beds and it is also advisable that they should be separated for some months every year. That these two have therapeutic value is admitted by the leading psychologists. In case the wife has no sex appeal for the husband, he should imagine during coitus that he is indulging in the act with a woman who is his sexual ideal. Looking at erotic pictures and indulging in erotic conversation just before coitus stimulate libido and increase erectile power in some men. These may be tried. Sexually weak men display greater potency towards the morning or at least after one sleep.

Conclusion—When a man has made a wrong selection as regards his sexual partner or when his wife has lost all charm for him, the social remedies open to him are divorce or keeping mistresses. There are men who do not like either of these remedies and then they will have to get reconciled to the situation.

Havelock Ellis says : "Marriage, we must never forget—as too often happens—is more than an erotic union. To the truly 'ideal' marriage, there go not only an erotic harmony, but a union of many-sided and ever-deepening non-erotic affection, a community of tastes and feelings and often an economic unity. The erotic element tends to become less prominent as the marriage in other respects becomes a closer bond. It may even disappear altogether and yet the marriage remain unshakably firm in mutual devotion."

The physician as well as his patient may bear in mind the following points :

1. Great love between the two partners will not allow much loss of sexual power in the male. When he complains of defective sexual power or the woman of frigidity, it usually means absence of love or ignorance of love technique in the other partner.

2. The most effective form of treatment in sexual disorders is LOVE.

3. Who with his whole heart wants to be potent cannot be impotent.

4. A man becomes old only when he feels old, and impotent only when he yields up his potency. Hence the old adage, "a man is as old as he feels."

5. A woman is as old as she looks and as attractive as she can make herself as regards dress, cleanliness, make-ups and behaviour.

6. Self-pity and being envious of the sex powers of others should be avoided, as these produce inferiority complex.

7. The remedies advertised in lay press are mostly worthless and the physician should guard the interests of his patient by discouraging him from using them.

8. As age advances, potency is bound to diminish in most persons. This is a physiological fact to which men should get reconciled.

XIII

SEXUAL NEURASTHENIA

Sex disorders are always associated with varying degrees of nervous symptoms—more marked than those associated with diseases of any other system in the body. In some cases the symptoms are very pronounced and out of all proportion to the condition causing them. Sexually weak persons develop a great degree of inferiority complex and they would sooner die than let any one know that they are impotent. For this, the attitude of the world to impotent men is largely responsible. Stekel says :

“And while a frigid woman does not look upon her condition as humiliating, considers herself in full possession of womanhood, and under circumstances is proud of her coldness, a man suffers when he is impotent. Impotence is a target for much jest; in the theatre, in proverbs, and in obscenities it is treated as an important erotic theme. The frigid woman, however, receives only slight attention in literature; public opinion even elevates her infirmity to the rank of a virtue, and gives it a heroic varnish, whereas the virtuous, impotent man succumbs to the curse of ridicule . . . To my knowledge, suicide in women was never caused by a poverty of sexual feeling, although a high percentage of male suicides occur because of a supposed impotence.”

Havelock Ellis writes :

“It may be added that we may find a curiously inconsistent proof of the excessive importance attached to sexual function by society which systematically tries to depreciate sex, in the disgrace which is attributed to the lack of ‘virile’ potency. Although civilized life offers immense scope for activities of sexually impotent persons the impotent man is made to feel that, while he need not be greatly concerned if he suffers from nervous disturbances of digestion, if he should suffer just as innocently from nervous disturbances of the sexual impulse, it is almost a crime. A striking example of this was shown, a few years ago, when it was plausibly suggested that Carlyle’s relations with his wife might best be explained by supposing that he suffered from some trouble of sexual potency. At once

admirers rushed forward to 'defend' Carlyle from this 'disgraceful' charge; they were more shocked than if it had been alleged that he was a syphilitic. Yet impotence is, at the most, an infirmity, whether due to some congenital anatomical defect or to a disturbance of nervous balance in the delicate sexual mechanism such as is apt to occur in men of abnormally sensitive temperament. It is no more disgraceful to suffer from it than from dyspepsia, with which indeed, it may be associated. Many men of genius and high moral character have been sexually deformed. This was the case with Cowper (though this significant fact is suppressed by his biographers); Ruskin was divorced for a reason of this kind; and J. S. Mill, it is said, was sexually of little more than infantile development."

SEXUAL HYPOCHONDRIA

Sexual neurasthenia may be best described under two headings, sexual hypochondria and sexual neurasthenia. Stekel describes sexual hypochondria thus:

"As a variety of psychic impotency, we might consider that produced by the 'imagination.' We have often learned to recognize the hypochondriacal ideas: that the genitals are shrivelled; that the spout of semen has become too weak in consequence of a stricture (which is absent); that the semen has become too thin; that the woman will notice a thinning of the pubic hair with disgust, and other absurd notions, are an etiological factor in a temporary and even a prolonged inability to perform the sexual act . . .

"As years go on, a number of patients finally sink into severe hypochondriacal conditions, the genitals and their function are then by preference the turning-point and centre of gravity of all desires and thoughts. The mildest, most frequently observed types are probably those who complain of a shrivelling of the sexual parts. 'My genitals have become altered through the flow of semen (spermatorrhoea),' is an expression which, despite instruction to the contrary, is never reduced to silence. Others speak of innumerable symptoms and 'objective disorders,' both possible and impossible. They repeatedly whine that they might create nothing more than sick progeny. In a case that came to me for advice, the only motive for the consultation was an observation that the products of pollution smelt like grated, raw potatoes, which naturally must indicate a severe disease. A young wine salesman,

who was never infected with gonorrhoea, declared that he often loses semen in the urine at the end of micturition; that he suffers from a stricture, which is indicated by a twisted stream of urine; that he is the victim of (possessing) testicles which are too small. My investigation of the case showed that the cloudy urine, which a superficial doctor would consider semen, was almost exclusively produced by phosphates; no trace of a stricture and absolutely normal testicles were present. Such patients may almost drive a physician to despair; they become extremely obnoxious callers who will finally arouse but one wish: their absence from society. Suicidal intentions are just as frequently maintained as not carried out. At least I have never known a patient of this type who actually killed himself. As a rule, they simply lack energy to carry it out, as Crushman very aptly puts it."

In addition to the symptoms described by Stekel, the patients describe also the following: the penis is deviated to one side or bent on erection, it is thin at the root and they feel burning sensation during ejaculation and emission. With a little experience the doctor can recognise sexual hypochondriacs by merely looking at them and I often make my patients wonder by enumerating their symptoms before they open their mouth. Such cases are difficult to treat, they need tactful handling and re-orientation of their ideas on sex by teaching them correct biological facts. Stekel is apparently impatient of such patients, because the line of treatment that he follows is psycho-analysis and this seldom succeeds in them, because though sexual hypochondriacs are neurasthenic, their symptoms are not caused by psychic factors but by false ideas as regards sex picked up from unscientific literature or received through faulty early training. What these patients need is patient teaching of biological facts and possibly also psychic treatment but not psycho-analysis. This is what I do and a cure is often effected.

SEXUAL NEURASTHENIA

Sexual neurasthenia is quite a different condition as regards etiology and symptoms. Those suffering from it come for consultation not for any sex disorder but for general neurasthenic symptoms, such as insomnia, loss of memory, loss of appetite, nervous tremours, backaches, headaches, frequent urination,

morning diarrhoea and so on. It is only by patient questioning can they be made to admit that they suffer from any sex weakness. By probing into the matter, we shall invariably find that they are at the time impotent in one way or other, almost always psychic, and also that they were once addicted to some habits which according to them or to the world are humiliating, shameful or sinful. These are auto-erotic and homosexual practices, frequent nocturnal emissions and incestuous longings or relations. The impotency associated with these cases may occasionally be of the atonic type. It is wise in all cases of neurasthenia, to enquire into the sex history and life of the patient, present and past.

As regards treatment, patient teaching of biological facts, correcting wrong notions already deeply rooted in the mind, psycho-analysis, sedatives like bromides, valerian and lupulin capsules, nerve tonics containing strychnine, glycerophates and Vitamin B1 and, if symptoms warrant, endocrine treatment are necessary. What particular hormone should be used would depend on the most predominant sexual symptom present. For instance, if nocturnal emissions are distressingly frequent, luteal hormone should be used, if complete sexual anaesthesia is present, the follicular and (or) testicular hormone, and so on. In physical exhaustion, small doses of the adrenal cortex hormone with or without testicular hormone would be beneficial. Sex life in any form should be completely forbidden and often it would be found that when the patient gains confidence, he would try coitus, possibly without the doctor's knowledge or permission, and succeed in it and then a cure, not only as regards his sexual symptoms but also of his neurasthenic symptoms, is magically effected.

A few illustrative cases are given. Some of the cases given in other chapters also may come under this section.

Case XLIX—Bachelor aged 34, consulted me for nervousness and nocturnal emissions occurring almost daily. He gave a history of two attacks of syphilis, but serological examination was negative. On enquiry it was discovered that he did not think or worry about sex or women and that recently he did not even have erections. His nervousness took the form of tremours of the hands when he handled any instrument or even a cup of tea. On examination the prostate was tender but everything else was normal. He was not inclined to give much of his past sex history or to take psycho-analytic treatment. This much, however, he admitted that a few years ago he was so poor that he had not even one satisfactory

meal a day and at that time he consorted with the lowest type of men and women. It was then that he contracted syphilis. Now he was earning a good income but found his libido gone and concurrently the nervous symptoms started. These were worse when he was in the company of strangers.

Seminal emissions indicated luteal hormone treatment but as there were depressant symptoms including absence of erection, it was decided to combine male hormone with it (see Chapter on Endocrines). After two injections given on alternate days there were morning erections and the nervous symptoms were better. The injections were then given every fourth day. He felt progressively better and the nocturnal emissions now occurred on the average once in ten days. In all he received twelve injections and by mouth he received the lupulin and camphor monobromide capsules mentioned previously.

Case L—A man wrote :

“A friend of mine, Mr. H., wishes to consult you on certain points. I give the narrative in his words :

“I am a young man of about 20 to 21 and look quite robust. I have had no venereal diseases but mine is a strange case. I was initiated to auto-erotism at the age of 13 by a friend of mine and the day and the occurrence are still vivid in my mind. It took about half-an-hour to produce any sensation but not ejaculation. After half-an-hour when I told my friend that I felt no extraordinary pleasure, he took my penis in his mouth and sucked it. I do not know whether something came out or not, but I felt a sensation of pleasure which I cannot forget and the like of which I have never experienced ever after. Since then, I am indulging in this vicious practice. Seven years ago, it took half-an-hour to ejaculate, but now it takes not more than two minutes. In those days, only a few drops of greasy yellowish fluid came out, but now in jerks comes out white strong semen which I am sure can make any woman pregnant. It is only once that I abstained from auto-erotism for a full month and that too on religious grounds. But now I am more of an agnostic than a religious youth. Formerly, I masturbated not more than four times in a month but now I do it ten to twelve times a month. It is a habit that persists, though I do not enjoy it. Sometimes I feel a little pleasure. I have tried every means to give it up but in vain. A thousand times I have vowed not to masturbate but always broken it. Now my desire for a woman is immense but I have never had intercourse with any. My heart leaps up when I see a young girl with a well developed bust. Once I had the chance of touching the bust of a girl. I found another paradise in it. The liking for intercourse with a woman is in its extreme pitch and perhaps I may be compelled to visit a prostitute. I cannot marry, for I am not independent. I am an atheist. Marriage will mean ruin of my life. How to gratify my desire and give up auto-erotism ? I am healthy, I play football

and other games with sufficient distinction, I pass the College examinations in first division, but I cannot persuade a girl for copulation. I have an extreme longing for that. Please advise me early in the matter'."

I cannot find in my notes whether I replied to this letter or what line of treatment I suggested. The boy was threatening to visit prostitutes. If he was older I would have encouraged him to do so. It should, however be borne in mind, while recommending heterosexual relationship to highly-strung young men like this one that the first attempt might end in premature ejaculation which would have made his neurasthenic condition worse. The treatment of masturbation is described in another section.

Case LI—"I am the son of a doctor but I am shy to expose my case to my father.

"I have been the victim of the habit of masturbation for a very long time, extending over a period of nine years, (from my 11th year to 20th year). I might have done this about 2,000 times. I am now aged twenty-one, being born in 1920. I stopped it only last year. My present condition is as follows :

1. The temptation to have coitus is very strong but I feel I am unequal to a woman. In my coitus, I find that the semen comes out in one or, at the most, two minutes. That is to say, I have no retentive power. I am unable to satisfy my partner. The erection also is not as good as it was formerly. The organ is 5 inches in circumference and 6 inches in length but it is curved at the root.
2. Another most important point is that the testes have shown no development, being of the size of a 15 year old boy. They hang loose and I have also varicose veins.
3. Even though I completed twenty-one years of age, secondary sexual characteristics, by which I mean growth of moustache and beard, have not appeared so far. I have no moustache except for sparsely placed hairs. Weight—110 lbs. Height—5 feet, 5 inches. Chest girth—32 inches. Legs are very lean and not in proportion to my age. Can my case be cured ?

"My case presented in points :

1. Semen oozes out quickly in a minute or two and this is watery.
2. Testicles under-developed.
3. No appearance of secondary sexual characteristics, (moustache and beard).
4. Legs disproportionate to size of body.
5. Erection not very straight and not hard."

This boy is an art student and apparently had attempted coitus which ended in premature ejaculation. I had no opportunities of examining him but I do not think from his history that it is a case of sexual infantilism. The small testicles and absence of secondary sexual characteristics may mean some hormonal deficiency but his premature ejaculation is most probably psychic. Here I may call attention to one significant point. In the case histories given, one will find that the younger patients, when they come for consultation, invariably say that they are atheists, though they were once intensely religious. This, in my opinion, is due to mixing up biological facts and religion. A man gets nocturnal emissions, which, though physiological in origin, he considers as a punishment for his "sins." He prays hard for forgiveness, but prayers effect no cure. He then loses faith in prayer, religion and even God. I remember the case of a boy aged 18 and a girl aged 16 who had coitus and the girl became pregnant. They prayed hard and promised many offerings to their Diety if the girl got her menses again. This she did not get and both became atheists!

Case LII—A medical man writes :

"It was in my childhood, at about fourteen or fifteen, that I started masturbation and that was because of bad company. I practised it for 2½ years and then I got married. As my wife and I were both young, she did not stay with me at that time. Of course then I stopped the practice because I realized that that was the worst thing for a man.

"After all I had to live with my wife, when I did quite well as far as enjoyment was concerned, so much so that I could not avoid coitus even for a day. Within a few years, however, I had begun feeling much weakness of my organ which was rather thin at its root and bent at its middle. The semen now became thin and day after day my retentive power was getting less.

"Now, I joined the medical college and felt that worrying over such things was very harmful, as it was likely to render one impotent. When I ceased to worry, my health improved very well, even the slightest 'dirty' idea would be sufficient to get me an erection or at least a sort of sensation which, if continued would finally end in the wetting of the lips of the urethra. If after that, I went for urination I would find some oily thing in the urine and, at the end of the act, actual seminal drops.

"In the hot season of 1937, I had a typical attack of varicocele. I treated myself with application of cold to the parts and a suspensory bandage and I was alright within a few days. I am, however, a constant sufferer from weak erections and hasty ejaculations. I also feel, as was explained before, that my organ is weak. I got myself examined by a doctor who assured me that there was nothing wrong with me except varicocele in the left side.

"Can you suggest any treatment which would cure my varicocele and weak erections? Also please let me know what medicines, etc.,

I should use to get rid of hasty ejaculation. No doubt I am indeed passionate but I cannot enjoy to that extent or even one-tenth of that which my passionate desire would like to have. I would like to have love-plays for the whole of the day but then I pass semen along with the urine. I pass dirty urine especially after every erection. It has been a constant trouble with me since many years. Now I feel—that I am in my 30th year—that I should recoup my full sexual strength so that I may have a more happy sexual life in the years to come. I am truly telling you that I am losing health because of this sexual trouble.”

This letter shows utter ignorance of biological facts. The man has a varicocele and this has been confirmed by another medical man. His passing “dirty urine,” his attacks of “spermatorrhea” and the belief that the organ is thin and bent are all signs of sexual hypochondria. In such people, it is difficult even to take their word as truth, that they ejaculate prematurely. If he suffers from it, it is probably due to the love-plays, which he admits he indulges in during the whole day. Here also I cannot trace my reply to the doctor but possibly I would have written to him to stop all sexual excitement, have healthy open-air exercise, and his prostate examined and if it was enlarged or the libido troublesome, to try injections of luteal hormone.

Case LIII—A case was sent to me by a medical colleague for opinion. He was an elderly married man about 50 years old, who said that his semen was of boiling heat when he ejaculated. This made him have coitus only at very long intervals. The wife confirmed the statement that the ejaculate after coitus was warm. The temperature of vagina was taken on one occasion immediately after coitus and it was found to be 100°F. He was a taciturn individual and would not answer any relevant questions. The possibility was that he did not for some reason or other like intercourse with his wife.

Before closing this chapter, it may be mentioned that men who are normally potent develop signs of neurasthenia when they live an abstinent life. Some obtain the necessary sex relief through masturbation, while others do not like the practice and get, what is popularly known as, “nervy.” Some among these again can sublimate their sex urge to social activities, religion and so on. Abstinence should, therefore, be kept in mind as a possible sexual cause for neurasthenia.

It is natural for a sexologist to look for sex disorders as a causative factor in all cases of neurasthenia. It should, however, be remembered that cases presenting almost identical symptoms might be caused by different factors, sex disorders in some and non-sexual disorders in others. The following case illustrates this point.

Case LIV—A man, aged 26, married 18 months and father of one child, was referred to me by a doctor to ascertain whether his neurasthenic condition had any sexual background. His symptoms were, in the patient's own words: "Always tense and 'on guard.' Feeling of great conflict within my mind. Inability to act spontaneously and freely—most pronounced when I am in company. Avoidance of friendship, preferring independence. Feel cut off from the rest of the world. Lack of concentration and on occasions temporary amnesia. Desire for seclusion. Inability to express my thoughts and emotions. Exhaustion at the end of each day. Depression and inferiority complex. Occasional trembling of my body when in touch with certain memories." As the patient was in a responsible position in the Army, these symptoms had to be corrected.

Here is the written history submitted by the patient: "Born during the last war. Father returned home from France some 18 months after my birth. He did not want a child just then and to him I was an unwanted child. He himself was of a neurotic temperament—lived only for my mother—wanted no family and would allow no friends in the house. He was always hostile to me and I was terrified of him when I was a child—thrashed and punished in some way almost daily. My father upto the date of his death, two and a half years ago, had never uttered any kind word to me nor showed any sign of affection for me. On the contrary, he was always criticizing me and used to tell me that he longed for the day when I would be old enough to leave the house for good and thus have my mother for himself. I always got on exceptionally well with my mother—she endeavoured to shield me from my father's wrath and they often had violent quarrels over me.

"My only brother was 4 years junior to me. From his birth, he enjoyed the affection of my father and was permitted to express himself and to receive anything he chose. I felt I was unfairly treated and I hated my father most violently and never got on too well with my brother. At about 12 years of age, I started to resist my father, attempted to defy him and argue with him. Had I been big enough, I am sure I should have fought him. He stopped attempting to hit me when I was 15 years of age—he must have realised that I would have retaliated. Although I hated him most intensely and told him that my aim in life when I grew up would be to make him suffer as I had suffered, there were occasions when I wished he would be decent to me, and when I craved for affection and happiness, such as my brother and other boys enjoyed, my father would say or do something which would cause me to violently suppress this wish, and it would be replaced by a violent hate of him and all other people who I felt had contributed to my unhappiness.

"I had a grudge to life in general. I remember saying to myself, 'the world has treated me most unfairly. I'll refuse to co-operate, I'll let people see how I am suffering, then perhaps one

day they will feel sorry for me and wish they had treated me decently.' I was always very thin as a boy and was most sensitive of this—felt 'odd' and inferior and this contributed in no small measure to my unhappiness.

"At the age of 17, I left home to live with relations—things had grown unbearable at home—and I stayed away until my mother mentioned that my father had invited me home. I was not too keen to return but I was not very friendly with the people I was staying with and my mother implored me to return. So, I accepted. My father attempted to be friendly and I responded, but with both of us it was superficial. Had my father come to me and said he was sorry for the way in which he had treated me and asked my forgiveness, I would have acted normally towards him and I am sure I should have found lasting happiness, but he made no such gesture. So deep down I still held a grudge which I never got rid of, even though in later years, especially when he was very ill, I attempted in my heart to forgive him and forget—desiring affection, appreciation and happiness above everything else in life."

This is the written history of the patient. From it, the cause of his present neurasthenic symptoms was apparent. There are two sides to every question and it would have been advisable to have questioned his mother on the subject, but as she was in England this could not be done. I felt, however, that the patient was telling me the truth, at least what he believed to be the truth. I reproduce this history in full, because similar conditions are very prevalent in families where the father is neurotic or a drunkard and the children hypersensitive and highly strung. I want every parent to realise what havoc they could cause to the emotional life of their children by thoughtless cruelty or acts. In this case I was asked to ascertain only whether the condition was sexual neurasthenia and, in my opinion, it was not.

Here are some of the relevant facts revealed during analysis. The father was not a drunkard, he seldom touched liquor. The mother was not pregnant when she was married. The boy started masturbation from the age of 12, three or four times a week. He had nocturnal emissions very rarely. He felt no inferiority complex in the company of girls, as a matter of fact, he was always falling in love and getting out of it. He had sex relations before marriage with four different girls. His marriage was a love marriage and he was quite happy when he was alone with his wife, though the inferiority complex showed itself when they were in the company of others.

After marriage, he wanted to be normal in every way and so consulted a psychiatrist in London who treated him by psycho-analysis for about five and a half months. He felt very much better at the time and thought that he was on the verge of a complete cure. He had to enlist at that time. He wanted to know whether I could continue the treatment. My reading of the case was that

the psychiatrist handled the patient in the wrong way in this sense—he gave him too much sympathy. The patient would, therefore wish to be psycho-analysed always—the only way in which he could get continuous sympathy. The case did not come under my speciality and I told him so, making it clear to him at the same time that he could “analyse” himself and get cured and that it would be unwise to depend always on others.

I do not think that it is necessary to discuss why this case did not show any symptoms of psychic impotency. He was in a way emotionally infantile and similar environmental conditions act in different ways on different individuals. I would not have been surprised if he had complained of impotency. Possibly his marriage at an early age to a loved person saved him from this.

PART V

STERILITY IN THE MALE

XIV ENDOCRINAL ASPECTS OF STERILITY IN THE MALE.

XV ORGANIC ASPECTS OF STERILITY IN THE MALE.

XIV

STERILITY IN THE MALE

CAUSATION AND ENDOCRINAL ASPECTS

Causes—Sexual intercourse between an adult male and female should result in pregnancy, and yet there are thousands of couples who do not get children, in other words who are sterile. The subject of sterility is so complicated that even today, all its causative factors are not well understood, and even when the causative factor is known, the treatment is often ineffective. There was a time when the woman was always blamed in infertile marriages and in our country, it is still quite common to see a man marrying again and again to get an heir, without ascertaining whether he himself is sterile. Recent investigations have proved that the male is as often at fault as the female. As a matter of fact, the pendulum of opinion has swung to the other extreme and many clinicians apportion the blame in sterile marriages more to the male than to the female.

The primary essentials for pregnancy to occur are healthy spermatozoa and ova and that these should meet in favourable surroundings. As far as the male is concerned, it is easy to decide whether he can be a father by a microscopic examination of the semen, which will reveal the presence or absence of healthy spermatozoa. It is not so easy to decide whether a woman is ovulating normally or whether there are obstructions in her genital passages which the spermatozoa have to traverse to meet the ova at the outer end of the fallopian tube. A woman who is menstruating regularly need not necessarily be ovulating regularly; nor a man who can enjoy coitus be necessarily fertile. This is analogous to the case of the male where a virile man may be sterile and a fertile man may be sexually weak. There are some complicated methods, by biopsy, electrical reactions, etc., by which it is possible to decide whether a woman is ovulating regularly. These are, however, beyond the scope of the general practitioner. In Chapter XVI is described a simple method for ovulation, the vitamin C test for Ovulation (Pillay, 1940).

Obstructions in the genital passages of the female can be detected by certain methods and in many cases they can be corrected. In this book, we are concerned only with sterility in the male.

Sterility may be temporary or permanent. Constitutional disorders lower vitality and cause temporary sterility by depressing spermatogenesis. There is no spermatogenesis in the early years of life. A boy may discharge semen or semen-like fluid but this may not contain spermatozoa. Though it is difficult to say at what age spermatogenesis stops, it has to be assumed that with advancing age, this function slows down. Cases are on record where men have procreated even after the age of eighty. It may be stated that from the time of puberty, the seminiferous tubules produce spermatozoa as long as the interstitial tissues secrete the male hormone.

Permanent sterility may be caused by endocrine factors and less commonly by organic conditions. The common organic conditions are atrophy of the testicles due to injury or diseases like mumps, obstructions in some portion or other of the ejaculatory passages and to a less extent malformations of the penis.

There are excellent text-books available on the subject of sterility, written by recognised authorities, but the subject is included in this book to make the subject complete. Organically conditioned cases of sterility come under the speciality of urologists and gynaecologists but my work has been confined to the endocrinal aspect of the subject and it is this that is stressed here. Treatment of organic types of sterility, mostly taken from the works of others, is also given to help the reader.

ENDOCRINE STERILITY

The endocrine glands believed to influence fertility are the testes, the anterior pituitary and the thyroid. Disorder in any of these should cause defective or absent spermatogenesis, but the glands directly and immediately concerned with this function are the testes. The other glands can only influence spermatogenesis through them. The linkage between the testes on the one hand and the anterior pituitary and thyroid on the other as regards spermatogenesis has not been satisfactorily worked out, so much so, that in endocrinal sterility very few clinicians are agreed as to which endocrine gland is at fault

and they stress treatment with testicular, anterior pituitary or thyroid products according to their preference. Defective or absent spermatogenesis can be easily diagnosed by examining the semen under the microscope. Laboratory methods have been devised to detect hypo and hyper functions of the thyroid gland by ascertaining the basal metabolism rate, but this is too complicated and beyond the field of the general practitioner. There is no method to detect dysfunction of the anterior pituitary.

Disorders of these endocrine glands are occasionally accompanied by certain constitutional signs. For instance, hypogonadism and sexual infantilism are seen in testicular and anterior pituitary dysfunction. General infantilism and obesity often accompany thyroid disorders. Obesity may be seen in dysfunction of the other two endocrine glands as well. The pituitary type of adiposity differs in certain respects from that caused by hypothyroidism. In the former, adiposity is confined chiefly to the breasts, abdomen, buttocks and thighs. Hands and mouth are small and the neck is short. In the thyroid type of obesity, the fat distribution is general over the whole body and not localised as in the pituitary type. Basal metabolism is low and mental dullness is more prominent in the thyroid type. In the gonadal type of obesity, hypogonadism and varying degrees of sexual infantilism are commonly noticed. A rough idea as to which endocrine is the root-cause of the sterility may be obtained from these factors.

DEFECTIVE CONDITIONS OF SEMEN

In examining the semen, the factors to look for are its quantity and consistency and microscopically the number of spermatozoa per c.c., the degree of their motility and longevity and the percentage of abnormal forms. A few of the terms commonly used in this connection may be explained. *Oligospermia* means that the quantity of semen discharged is small. *Oligozoospermia* means reduction in the number of spermatozoa, while *aspermia*, also known as *azoospermia*, means their complete absence. *Necrozoospermia* is a condition of semen in which are present, "large numbers of immotile but morphologically normal spermatozoa in which motility cannot be induced by warming or similar procedure." *Asthenospermia* means lack of vitality and consequently, of longevity of the spermatozoa.

Oligospermia—The average quantity of semen discharged is about 4 to 5 c.c., but in one of my cases, it was 7 c.c. In oligospermia, it may be only a drop or two. The quantity of semen is important in this way: if a man has a sperm count of 2 million per c.c. and the total quantity of semen discharged is 5 c.c., the total number of spermatozoa in the discharge will be 10 million, but if he discharges only 1 c.c., the number will be only two million.

When no semen is discharged after coitus or masturbation or as nocturnal emission, the cause is either sexual infantilism or more commonly some organic obstruction in the seminal passages. Psychic inhibition may also cause the condition (see Case XLIV). Sexual infantilism can easily be diagnosed by clinical examination. Psychic inhibition is more difficult to diagnose. After having excluded these two factors, investigations should be carried out to see whether there are any obstructions in the seminal passages. This is described in the next chapter.

Oligozoospermia—The sperm count of a normal specimen of semen is about 100 to 200 million per c.c. In one case, I saw a count of 420 million per c.c., and yet his wife was sterile. The question to decide is what the minimum sperm count in a specimen of semen should be to consider it fertile.

Dr. Dreutzmann says: "The work of Hotchkiss has shown that the previous concept of men being sterile, if the count is below 60 million per c.c., is incorrect. In his work on 200 men whose wives were pregnant, Hotchkiss found counts as low as 2,250,000 per c.c., and in 25 per cent. of men the count was below 60 million!" In one of my cases, the wife of a man whose sperm count was only 3,333,000 became pregnant. She conceived three times but on all occasions aborted at the tenth week. When there is complete absence of spermatozoa, aspermia, it means either endocrine dysfunction or some obstruction in the vas deferens. In these cases, the fluid extracted by direct testicular puncture should be examined for spermatozoa. If no spermatozoa are found even in this, the cause should be endocrinal. The technique of testicular puncture is described in the next chapter.

These two conditions, *viz.*, oligospermia and oligozoospermia, are the two commonest factors met with in male sterility. The quantity of semen discharged is immaterial if the sperm count

is normal. If it is below normal, the larger the quantity of semen the better. In judging the fertilising value of a sample of semen, the sperm count should be considered together with the vitality and the percentage of healthy and motile sperms in it. The total number of healthy and motile sperms present in each ejaculate is, therefore, an important factor. Various animal experiments are described by Marshall in his book, *The Physiology of Reproduction*, proving that spermatozoa aspirated direct from the testicle and epididymis are often immotile and unfertile but when mixed with the secretions of the seminal vesicles and the prostate gland they become active and fertile. This shows how important the secretions of these, which form the larger portion of semen, are in fertility.

Necrozoospermia—True cases of necrozoospermia are believed to be rare but pseudo-necrozoospermia is common. In specimens collected in condoms, even when they have been previously rinsed out in normal saline, healthy spermatozoa are often found immotile and apparently dead, but when the specimens were ejected straight into a glass bottle, they are found to be motile. As a precaution against incorrect diagnosis, the specimens of semen for examination should, therefore, be ejected direct into a bottle or taken from the vagina immediately after coitus with a long fountain pen ink-filler. Pseudo-necrozoospermia indicates, however, that the spermatozoa are of low vitality.

Abnormal Forms of Spermatozoa—Dreutzmann says: "Moench states that the number of abnormal sperm should not exceed from 19 to 20 per cent. He assumes that fertility is impaired when abnormalities reach 20 to 22 per cent., and that clinical sterility is usually present if more than 25 per cent. abnormal forms are found.

"In a series of forty-eight men whom I was able to follow over a period of years, 35 per cent. had less than 20 per cent. abnormal sperm and pregnancy occurred in every case without any treatment, bearing out Moench's conclusions. All of the patients showing abnormalities of the ejaculate can be classified into four groups.

1. Normal sperm count and normal percentage of abnormal forms with a lowered basal metabolic rate.
2. Oligospermia and a normal percentage of healthy sperm.

3. Normal number of sperm with an increase of abnormal forms.
4. Oligospermia with an increase of abnormal forms. Fifteen per cent. of the patients were in Group 1, having a basal metabolic rate varying from minus 10 to 18. They were all given thyroid by mouth, following which the desired results were obtained."

EXAMINATION OF SEMEN

(By K. T. Gajjar, M.D.)

Cases of infertility are receiving more serious study today than formerly and before starting any treatment of the female, a comprehensive examination of the semen is undertaken. The general practitioner will find it comparatively easy to make himself familiar with the characteristics of a normal semen. For his guidance an outline of the procedure followed in my laboratory is given.

COLLECTION OF SEMEN

The patient is told to observe at least a week's continence. The semen may be collected by any one of the following methods :

(a) By masturbation. A glass container with wide neck and tightly fitting screw top is supplied with a label on which the patient's name and the date and the hour of emission are recorded. These containers are previously treated with potassium bichromate and sulphuric acid and subsequently washed well under running water and dried. Instructions are given to the patient to avoid haste, otherwise he may not attain full orgasm before emission.

(b) By condom. Patients show sometimes an aversion to the first method and then intercourse by condom is advised. Skin condoms are less damaging to the sample but are more difficult to obtain. Whichever type of condom is used, it is issued in a glass container such as described under method (a). Condoms should be washed thoroughly in running water, dried on a smooth blotting paper and re-rolled. No lubricant should be used. Chemicals used in manufacturing condoms are hostile to spermatozoa. Immediately after intercourse, the condom is removed and the contents are emptied into the glass container by snipping off the tip.

(c) Reference may be made to the increasingly popular Huhner's test, where more information about the vitality of the husband's semen in the genitals of his wife can be obtained. Intercourse takes place without condom and the semen is then pipetted into a glass container.

TRANSPORTATION OF SEMEN

Specimen after collection should be sent for examination with the least possible delay. In my laboratory, I give patients the facility of a private room, for the collection of specimen. If it is not possible to collect the specimen in the laboratory, the bottle containing it may be kept in an inside pocket as near the skin as possible during transit.

MACROSCOPIC EXAMINATION OF SEMEN

(i) Physical characters of semen : When examined immediately after emission, the semen is a fairly viscous fluid, like a fresh concoction of starch. This appearance is soon lost and, when allowed to cool, it tends to gelatinise and becomes rapidly liquified, all these changes depending on the enzyme content. Very high viscosity and absence of liquefaction reduce the chances of the spermatozoa reaching the cervical canal, liquefaction appearing to be a necessary factor for the release of spermatozoa.

(ii) Volume : The quantity of semen at each ejaculation is 3-5 c.c. generally. Volume varies widely even in the same person and to some extent is influenced by the period of continence. Volume below 1.5 c.c. is below normal, though it does not imply lowered fertility unless associated with deficiency of the spermatozoa. Volumes of 6 c.c., and over may be considered excessive.

(iii) Absence of occurrence of liquefaction. This has already been described.

(iv) Degree of viscosity. Normally it is that of thin cream.

(v) Colour may reveal presence of blood (haemospermia) or pus (pyospermia).

(vi) Chemical and physico-chemical properties. Amongst the most important of these are the pH (Hydrogen Ion concentration) and buffering capacity.

(a) pH is round about 7·8 (slightly alkaline). This observation should be done on a fresh specimen with the help of a (BDH) Universal Indicator. Spermatozoa are potentially motile in an alkaline medium and die when pH is lower and tends towards acidity, i.e., below 7.

(b) Buffering capacity. High pH of semen does not in itself favour motility in the conditions actually present in the vagina. The complete buffering mechanism of the semen serves to maintain an alkaline or weakly acid pH except when exposed to high acidity. Buffering capacity expressed in c.c., of centi-normal HCl required to adjust pH of semen to 7·1 or 6·7 should be between 3·1 to 5·1.

MICROSCOPIC EXAMINATION

This serves to establish :

1. General appearance of semen.
2. Number of spermatozoa.
3. Motility of spermatozoa.
4. Longevity of spermatozoa.
5. Morphology of spermatozoa.
6. Presence of inclusion, such as crystals, cellular and non-cellular elements.

1. General appearance : The specimen is well stirred and with a capillary pipette a wet film is made and covered with a coverglass. The film must not be too thin lest rapid drying should occur and impair the motility of spermatozoa.

The general appearance of the field is noted. A normal specimen should show at once innumerable spermatozoa dashing rapidly hither and thither. Spermatc crystals, few and far between, may be found, and along with this there are usually products of the seminal vesicles seen as small round refractile bodies, less than half the size of a red blood cell.

The specimen may be abnormal in the content of spermatozoa or in that of the presence of blood and pus cells, the number of which may be recorded, roughly per microscopic field. A significant number of pus cells along with dead, feeble or absent spermatozoa may mean that there is some pathological condition in the sex apparatus requiring further investigation.

2. Number of spermatozoa per c.c.: One has to observe a number of specimens per c.c. Naturally the total number will depend on the volume of the semen, and so this figure is relative. Counting is done by a haemocytometer. Dilution should be made according to the density of the specimen and this can only be decided by practice.

The sample is stirred with a clean glass rod and 0.1 c.mm. of it is drawn up in a red blood cell pipette, followed by the diluting fluid up to the mark 101.

Diluting fluid—Soda bicarbonate—5 grams.

1% Formalin water—100 c.c.

1% Gentian Violet watery solution—1 drop.

The formalin in the diluting fluid kills all the sperms thereby stopping the disturbing factors of motility.

3. Motility of spermatozoa: If motility is absent in a fresh sample, a hanging drop preparation is made and warmed to body temperature. This procedure often evokes or intensifies motility, but the very fact that it is necessary indicates asthenozoospermia. To determine the percentage of motility one can narrow down the visual field of the microscope by inserting in the eyepiece a disc of black paper, with a narrow sector cut out thereby narrowing the field. This minimises the difficulties which arise from the fact that the sperm population in the microscopic field is constantly changing, non-motile spermatozoa remaining stationary while new motile spermatozoa continuously enter it. Motile ones are counted as quickly as possible and non-motile ones afterwards. This is repeated in several areas of the film. If motility is very low, counts should be repeated at body temperature.

4. Longevity of spermatozoa: This is measured by repeating motility counts at frequent intervals for 24 hours or till viability is lost. This varies according to the temperature at which specimen is kept and at which examination is conducted. Ideally, observations should be made of specimens stored at body temperature. However, at this temperature spermatozoa die quickly and differentiation between normal samples and those showing asthenozoospermia is often difficult. Therefore, it is advisable that the specimen should be kept in a cold place at 4°C. and examined at room temperature.

5. Morphology of spermatozoa: Reliable knowledge on morphology of spermatozoa can be had only from stained films. Unstained preparations give only a rough idea about their characters.

Staining: For clinical purposes the following method of staining can be recommended.

(i) Haematoxylin-eosin. The slide prepared as described is immersed in haematoxylin solution for several minutes, the precise time to be determined by trial with the solution used. It is then transferred to tap water for three to five minutes and counterstained with eosin. No precise directions are given, since the staining properties of semen vary considerably and some specimens may have to be stained two or three times with intermediate bleaching or differentiation before satisfactory results can be achieved.

If staining by this method is carried out successfully, the anterior portion of the head of the spermatozoa will be stained light violet, the posterior portion will be stained dark, vacuoles in the head will appear as inclusions with high refractory power, and the middle piece and the tail will be bright red.

Once fully mature, the normal spermatozoon consists of three main portions: (a) The *head* may be described as intermediate in form between pyriform and spatular. Viewed in profile it is seen to converge at its anterior margin into a very thin edge. Its shape varies slightly, being rounder in samples from some men and more elongated in others. Depending on whether the head is seen laterally or frontally, the pyriform shape determines the different appearances on microscopical examination. The length of the head varies from man to man. It stains unevenly, the anterior portion showing less affinity to nuclear stains, such as haematoxylin, than the posterior, which usually stains very darkly.

(b) The *middle piece* is of cylindrical shape, though in many spermatozoa it seems to taper. Between the head and the middle piece can be recognized the neck, even with the simpler stains used in routine work. The essential structure of the neck are two knobs, the anterior and posterior respectively. From the posterior knob, originates the axial filament, which runs towards the end of the tail.

(c) The *tail* has a mean length of 48u. It has a relatively simple structure, although appropriate staining methods and the examination of developmental stages show that it consists of two elements—a thread and a surrounding sheath.

Significance of Spermatozoal Structure—To understand the biological significance of these structures, the following facts should be borne in mind.

The spermatozoon is produced by the gradual transformation of a complete cell. The metamorphosis which changes the primary spermatogonium into the mature gamete affects every single constituent of the cellular structure. It is significant that most of the original cell body and of the nucleus are preserved in the spermatozoon—though in greatly altered form. It follows that the spermatozoon corresponds to a complete cell, in as much as all the essential elements are represented in it.

It should be noted in particular that the head represents, in its entirety, the nucleus of the sperm cell. Thus, the head as a whole carries the genetic endowment of the gamete. The centrioles are represented by the anterior and posterior knobs on the one hand and the terminal ring on the other. Most of the cell body (cytoplasm) is lost, but part of it survives in the substance of the outer sheath which forms the peripheral cover of the axial filament.

Nor is this cytological completeness of an incidental and adventitious nature. Fertilization represents the union of two complete cells, or rather the co-operation and combination of two sets of cellular organs—male and female. Both the male and the female gamete—spermatozoon and ovum—contribute a nucleus; they both supply centrioles, which in the case of the male gamete are represented by the knobs and the terminal ring; and both bring the union into attraction spheres. On biological grounds it, therefore, seems likely that the spermatozoon which lacks, say, the derivatives of the centrioles (knobs), will be unable to furnish the condition for cleavage after fertilization, and the predominance of incomplete or misshapen spermatozoon in the semen of sterile men bears out this conclusion.

Two types of deviation from the normal may be distinguished :

(a) *Immature forms*—These are rare in normal semen and in certain types of sterility they may occur in large numbers. Appearance depends on the stage of development during which they have left the epithelium. These cells though easily recognisable are not always well preserved and have a tendency towards secondary changes.

Atypical characteristics seen in immature forms consist in some cases in a partial or pronounced reduction of chromatin, in other cases in diffuse chromatin over a large head. In others again a large acidophil cytoplasmic attachment persists, surrounding the middle piece. Some atypical immature forms are represented by "fish" cells—that is to say, cells elongated into an incompletely developed tail, which may or may not show motility.

(b) *Teratological forms*—These are not restricted to one spermatozoal structure only but affect several components.

A.—Head Forms

Size sometimes deviates from what is to be regarded as the normal. The head may be minute and represented only by a small knob, affixed as it were to a tail; or it may be relatively gigantic. Instead of having the usual form it may be sharply pointed towards the anterior margin; or the form of the spermatozoa may be reversed, the tail being attached to a tapering neck; or the head may be inverted laterally.

The head, or its anterior portion only, may show numerous acidophil vacuoles, which can even be recognized on a dark ground with very strong illumination.

B.—The Middle Piece

The middle piece and the tail may be completely absent. This is a rare but very serious abnormality, since it deprives the spermatozoon of all motility. Minor abnormalities of the middle piece and tail are more common. The abnormalities of the middle piece are less varied than those of the head, notwithstanding the structural complexity of this region. It is, however, not possible to recognize certain of the abnormalities

in routine preparations. For practical purposes the following variations from the norm may be regarded as significant :

- (i) The middle piece may be practically absent, the transition from tail to head being achieved by a thin thread.
- (ii) The middle piece may be broader than normal. This enlargement is sometimes apparent only, representing an abnormality of the head (the inverted pyriform type) which tapers towards the tail instead of being sharply divided from the middle piece.
- (iii) The middle piece may apparently be well-developed, but lacking in structural differentiation.

C.—*The Tail*

The spermatozoon may be completely tailless. In some cases the loss of the tail may be a secondary process and can be recognized as such by the presence of numerous headless tails in the specimens; but in occasional specimens tailless heads are fairly frequent, but headless tails are absent, suggesting that in certain disturbances of spermatogenesis tail formation is in abeyance. In these cases the middle piece is almost invariably lacking as well.

One of the commonest abnormalities is the so-called "roll-tail." As far as can be judged, the cells concerned may or may not show normal heads, but the tail is rolled up either behind or round the head of the spermatozoon.

6. Presence of inclusions, such as crystals, cellular and non-cellular elements.

1.—*Cells in Normal Semen*

(a) Large epithelial cells: These are not unlike those generally found from stratification and keratinization of epithelial elements and resemble vaginal cells. The origin of cells is obscure. They may be from prostate or the epithelium of the ejaculatory passages. If either number is small one can disregard their presence. But one has to take notice of them in association with certain abnormalities, *e.g.*, oligospermia or teratozoospermia when they may be found in large numbers. They may be present also in occlusion of the ducts following gonococcal infections and in cases of vasoligature.

(b) Small epithelial cells: These are present in normal semen. They vary in character and are presumably of different origin and significance—their size being 8u to 10u.

2.—Cells in Abnormal Semen

The cells here are more varied and it is impossible to describe all the manifold forms. Some of these cells may be of testicular origin. Leucocytes are also present but they are scarce in normal semen. When they are found in large numbers and in clumps, the condition is called pyospermia. Bacteria as found in normal fresh semen are presumably derived exclusively from the terminal passages.

2. Crystals and other non-cellular elements: Some of these stain readily with iodine and probably represent starch globules or bodies of similar composition. In addition there are smaller inclusions of brownish colour which do not stain with iodine—their origin and significance being doubtful.

Crystals in small numbers may be present in normal semen as well as in abnormal specimen and sometimes found in large numbers and of various types. They are derived from the accessory glands and their presence indicates a disturbed function of these organs. Even normal semen can show numerous crystals when left standing or drying and this is not pathological.

MOST OF THE MATERIAL IN THIS PAPER ARE COLLECTED FROM *Sterility and Impaired fertility*, BY CEDRIC LANE-ROBERTS, ALBERT SHARMAN, KENNETH WALKAR. WIESNER, 1939 EDITION.

ENDOCRINAL TREATMENT

Before discussing the endocrinal treatment of disorders of spermatogenesis it is necessary to remind the reader that the exocrine function of the testicles is dependent on its endocrine function. Spermatogenesis has, however, no bearing on the production of the male hormone. The testicular hormone influences also the secretions of the seminal vesicles and the prostate and thus increases the quantity of semen. The anterior pituitary hormone is believed to influence spermatogenesis through the gonads but independently of the male hormone.

Be this what it may, the consensus of opinion now is that it does not influence in any way the quantity of the secretions of the accessory sex organs. "Definite proof has been offered that the prepituitary hormones stimulate the gonads of both sexes but fails to act on the tubular apparatus of either sex directly. This signifies no action on the uterus and the vagina in the female and on the seminal vesicles and the prostate in the male." It has also to be borne in mind that for the anterior pituitary to influence spermatogenesis, healthy tubular tissue should be present.

As the endocrine glands that produce defective spermatogenesis are the testes, the anterior pituitary and the thyroid, the treatment advocated for endocrinal types of sterility is with any one of these products. Before reliable hormonal products were available, it was the practice for doctors to treat every patient with thyroid gland products by mouth. In some cases, the man became fertile, but controlled studies on this line of treatment are not available. By controlled studies is meant, repeated examinations of semen during the course of treatment. It cannot also be proved whether the men reported to have been cured by thyroid therapy would not have become fertile without any treatment. Some clinicians advocate the continuous use of the thyroid, while others advise its use for, say 10 or 15 days only every month.

At present controversy ranges around whether the testicular hormone or the anterior pituitary hormone is more effective in treating defective spermatogenesis. Advocates of both lines of treatment have produced chapter and verse to support their contention. I have not seen, however, in any literature mention of the use of the female hormone in this disorder and some of the cases treated by me with this hormone combined with the testicular hormone are, therefore, given in detail. In only one case, have I used the anterior pituitary-like hormone with appreciable benefit. The only other product that is now believed to influence spermatogenesis is Vitamin E. Here also controlled studies in human males are not available. I often prescribe it, 10 mg. a day, along with or after the treatment with hormones. There is controversy as to whether the natural or synthetic vitamin is more effective. My personal opinion is that the latter is to be preferred.

There is great controversy and confusion as regards the effective dosage to be administered in defective spermatogenesis, especially of the testicular hormone. Dreutzmann writes:

"At the present time testosterone propionate is the androgen most frequently used by physicians in the treatment of both impotence and sterility. Heckel and McCullagh and McCurl have shown that this drug used in doses of from 25 to 50 mg., caused a decided decrease in the number of spermatozoa. However, according to the observations of Rubinstein and Kurland the administration of small doses of testosterone, 5 mg., three times a week caused an increase in the number of sperms.

"Encouraged by their results, I studied the effect of small doses of testosterone propionate on the abnormal sperm of six patients. In three men the percentage was within normal limits and in the other three there was a pathological increase in the abnormal forms. Testosterone propionate was injected three times weekly in 5 mg., doses for one month. As can be seen from the table there was no consistent change after the administration of the drug. In two patients with an increased number of abnormal sperm before treatment the drug caused a further increase in pathologic cells, while in the third patient there was no change.

**Abnormal Forms after Twelve Injections of 5 Mg.
of Testicular Hormone**

				Before Treatment	After Treatment
Case 1	..	..	..	24%	19%
Case 2	..	..	..	14%	17%
Case 3	..	..	..	18%	17%
Case 4	..	..	..	31%	31%
Case 5	..	..	..	27%	33%
Case 6	..	..	..	28%	50%

"In view of the harm that may occur, the indiscriminate injection of endocrine products should be stopped. One should be especially cautious in the use of large doses over long periods of time as the pathologic changes in the sperm may be increased by such treatment.

"It is impossible to explain why a group of men receiving the same androgen or gonadogen for the same condition, as for example oligospermia, should react differently. In some

instances there will be an increase in the number of sperm, whereas in others there will be no change. Marked increase in the number of abnormal forms may also occur in one man while a decrease will result in another."

My experience shows that small doses of the male hormone are more effective, while large doses appear to exert a depressing effect on the seminiferous tubules as well as on the interstitial tissues of the testicles. The following case vividly illustrates this point.

Case LV—Patient aged 25, wife 23, married three years, consulted me for sterility. The patient's general health and sex parts were normal.

23-5-1942.

Quantity of semen—4 c. c.

Consistency—Liquid.

Number of spermatozoa per c. c.—9,090,000.

Motility—Fair and present in 50% only.

Longevity—Fair (8 hours at room temperature).

Abnormalities of the body—In not more than 20%.

He was given by his doctor six injections of the total testicular hormone and thirty injections of testicular hormone in 25 mg. doses.

15-8-1942.

Quantity of semen—3 c. c.

Consistency—Thinner than cream.

Number of spermatozoa per c. c.—10,700,000.

Motility—Good in about 90%.

Longevity—Good.

Abnormalities of the body—In less than 20%.

He consulted me on 28-8-1942 and I gave him 7 injections every 3rd to 4th day of 5 mg. of testicular hormone and 1 mg. of follicular hormone.

15-9-1942.

Quantity of semen—3.5 c. c.

Consistency—Thinner than cream.

Number of spermatozoa per c. c.—33,330,000 per c. c.

Motility—Good in about 90%.

Abnormalities of the body—In less than 20%.

The patient should now have been left alone for a while to see whether the treatment already given would cause a still further increase in the sperm count; but he insisted on having some more injections. During the course of treatment with 25 mg. of the testicular hormone, the patient felt sexually depressed. With the smaller dosage, the depression was not so marked but he complained of pain

and enlargement of the nipples—quite a possible reaction. He thought that his breasts were becoming bigger, though I could not see any enlargement. On 15/9, 18/9 and on 26/9, he was again given injections of testicular hormone 5 mg. and follicular hormone 1 mg. The pain and enlargement of the nipples became worse and the patient became nervous. On 29/9 and 3/10, he was given injections of 10 mg. of testicular hormone alone.

5-10-1942.

Quantity—4 c.c.

Consistency—Thinner than cream.

Number of spermatozoa per c.c.—12,000,000.

Motility—Good in about 90%.

Abnormalities—In less than 20%.

Treatment was now discontinued and semen was again examined.

20-10-1942.

Quantity—3.5 c.c.

Consistency—Thinner than cream.

Number of spermatozoa per c.c.—20,700,000.

Motility—Good in about 90%.

Abnormalities—In less than 20%.

On 20/10 and 24/10 he was given 5 mg. of testicular hormone and 0.5 mg. of follicular hormone. He began complaining of tenderness in the nipples and slight depression in libido. On 27/10 and 31/10, he was given 10 mg. of testicular hormone and 0.5 of follicular hormone. The nipple tenderness was less and libido was normal. Treatment was now stopped.

24-11-1942.

Quantity—5.0 c.c.

Consistency—Creamy.

Number of spermatozoa per c.c.—44,000,000.

Motility—Good in about 90%.

Abnormalities—In less than 20%.

On 24/11, 26/11, 28/11 and 30/11, he was given 5 mg. of testicular hormone and 0.25 mg. of follicular hormone.

24-12-1942.

Quantity—4.5 c.c.

Consistency—Creamy.

Number of spermatozoa per c.c.—42,670,000.

Motility—Good in about 90%.

Abnormalities of the body—In less than 10%.

18-1-1943.

Quantity—3 c.c.

Consistency—Creamy.

Number of spermatozoa per c.c.—58,700,000.

Motility—Good in over 90%.

Abnormalities of the body—In less than 10%.

Other cases treated with the combined hormones follow :

Case LVI—Man aged 35, wife 31, married three years.

10-7-1940.

Quantity of semen—2.5 c.c.

Consistency—Creamy.

Number of spermatozoa per c.c.—17,330,000.

Motility—Absent (Condom specimen).

15-7-1940.

Quantity—5 c.c.

Consistency—Creamy.

Number of spermatozoa per c.c.—60,000,000.

Motility—In 50% (bottle specimen).

Six injections of 200 units of (mare serum) gonadotropic hormone were given every other day.

7-8-1940.

Quantity of semen—7 c.c.

Consistency—Thinner than cream.

Number of spermatozoa per c.c.—26,700,000.

Motility—In 75% (bottle specimen).

The increase in the quantity of semen is difficult to understand if we accept Frank's view that the gonadotropic hormone has no action on the secretions of the seminal vesicles and prostate gland. The period of continence before each test was the same and the extraction of semen was by coitus. The patient showed a good number of pus cells in his semen and urine, but there was no history of gonorrhoea. Besides the injections, he was also given sulphanilamide by mouth. Two months after treatment, the patient's wife conceived.

Case LVII—Man aged 30, wife 22, married nine years.

22-4-1940.

Quantity of semen—2.0 c.c.

Consistency—Creamy.

Number of spermatozoa per c.c.—28,000,000.

Motility—Absent (bottle specimen).

Abnormalities—Not noted.

Testicular hormone 100 mg. in seven injections were given in a period of four weeks. For unavoidable reasons, the semen could not be examined soon after the termination of the treatment.

30-8-1940.

Quantity of semen—0.75 c.c.

Consistency—Creamy.

Number of spermatozoa per c.c.—25,300,000.

Motility—Nil.

Abnormalities—Present in about 20%.

No treatment.

27-9-1940.

Quantity of semen—1 c.c.
Consistency—Creamy.
Number of spermatozoa per c.c.—84,000,000.
Motility—Nil.
Abnormalities—Not noted.
No treatment.

30-9-1940.

Quantity of semen—1.5 c.c.
Consistency—Creamy.
Number of spermatozoa per c.c.—86,700,000.
Motility—Good in 50%.
Abnormalities—Not noted.

On 5/10 and 6/10, injections of testicular hormone 50 mg. were given.

8-10-1940.

Quantity of semen—2 c.c.
Consistency—Mucoid.
Number of spermatozoa per c.c.—73,330,000.
Motility—Good in 50%.
Abnormalities—Not noted.

On 8/10, 9/10 and 10/10 were given injections of testicular hormone 10 mg. and follicular hormone 1 mg.

11-10-1940.

Quantity of semen—3 c.c.
Consistency—Creamy.
Number of spermatozoa per c.c.—89,330,000.
Motility—Good in 90%.
Abnormalities—Not noted.
13-10-1940—Nocturnal emission.

16-10-1940.

Quantity of semen—3 c.c.
Consistency—Creamy.
Number of spermatozoa per c.c.—93,300,000.
Motility—Almost all motile.
Abnormalities—Not noted.

The period of continence between each examination was more or less the same, about 4 to 6 days, and extraction of semen was by coitus and specimens were collected in bottles. Treatment was now stopped.

7-11-1940.

Quantity of semen—2 c.c.
Consistency—Thinner than cream.
Number of spermatozoa per c.c.—21,400,000.
Motility—Good in 75%.
Abnormalities—Not noted.

7-5-1941.

Quantity of semen—1 c.c.
Consistency—Thinner than cream.
Number of spermatozoa per c.c.—15,330,000.
Motility—Nil.
Abnormalities—Not noted.

12-5-1941.

Quantity of semen—2 c.c.
Consistency—Thinner than cream.
Number of spermatozoa per c.c.—14,220,000.
Motility—Nil.
Abnormalities—Not noted.

4 injections of 5 mg. testicular hormone and 1 mg. follicular hormone were given every 4th day in June, 1941.

9-7-1941.

Quantity of semen—2.5 c.c.
Consistency—Creamy.
Number of spermatozoa per c.c.—53,300,000.
Motility—Nil.
Abnormalities—In less than 20%.
The same treatment was repeated.

5-8-1941.

Quantity of semen—3 c.c.
Consistency—Creamy.
Number of spermatozoa per c.c.—50,700,000.
Motility—Nil.
Abnormalities—In less than 20%.

Injectons of 10 mg. testicular hormone and 1 mg. follicular hormone were now given on two consecutive days.

8-8-1941.

Quantity of semen—1.2 c.c.
Consistency—Creamy.
Number of spermatozoa per c.c.—41,330,000.
Motility—Good in 90%.
Abnormalities—In less than 20%.
Treatment was again stopped.

16-9-1941.

Quantity of semen—1 c.c.
Consistency—Thinner than cream.
Number of spermatozoa per c.c.—2,130,000.
Motility—Good in 75%.
Abnormalities—In less than 20%.

It was now found that the patient passed a large quantity of sugar in his urine. For how long he had diabetes is not known. Hormonal injections were stopped and he was put on insulin.

On 29-12-1942, the patient reported that his diabetes was under control.

29-12-1942.

Quantity—2.5 c.c.

Consistency—Thinner than cream.

Number of spermatozoa per c.c.—14,700,000.

Motility—Nil.

Abnormalities—In less than 20%.

Case LVIII—Man aged 30, wife 30, married three years.

21-10-1940.

Quantity of semen—3.0 c.c.

Consistency—Thinner than cream.

Number of spermatozoa per c.c.—5 in whole coverslip.

Motility—In only one and that poor.

One injection of 10 mg. and 4 injections of 25 mg. of testicular hormone were given from 21/10 to 27/10. To each injection 1 mg. of follicular hormone was added.

1-11-1940.

Quantity of semen—3.2 c.c.

Consistency—Creamy.

Number of spermatozoa per c.c.—8 in whole coverslip.

Motility—Fair in one.

5 injections of 10 mg. testicular hormone and 1 mg. follicular hormone were now given.

8-11-1940.

Quantity of semen—4 c.c.

Consistency—Creamy.

Number of spermatozoa per c.c.—144,000.

Motility—Good in 10%.

Abnormalities—Not noted.

21-11-1940.

Quantity of semen—4.5 c.c.

Consistency—Creamy.

Number of spermatozoa per c.c.—177,000.

Motility—Good in 40%.

Abnormalities—Not noted.

From 9/11 to 20/11 were given injections like before.

18-12-1940.

Quantity of semen—5.0 c.c.

Consistency—Creamy.

Number of spermatozoa per c.c.—133,000.

Motility—Good in 20%.

Abnormalities—Not noted.

From 18-12-1940 to 13-1-1941 were given 3 injections of 20 mg. testicular hormone and then 4 injections of 5 mg. testicular hormone combined with 1 mg. follicular hormone.

20-1-1941.

Quantity of semen—3.5 c.c.
Consistency—Creamy.
Number of spermatozoa per c.c.—456,000.
Motility—Good in 40%.
Abnormalities—In 50%.

From 1-3-1941 to 24-3-1941 were given 6 injections of testicular hormone 5 mg. with 1 mg. follicular hormone.

27-3-1941.

Quantity of semen—3.5 c.c.
Consistency—Creamy.
Number of spermatozoa per c.c.—4,067,000.
Motility—Very good in 75%.
Abnormalities—In 30%.

An interesting feature was that the abnormalities which were over 50 per cent. now were seen only in 30 per cent. The wife conceived but aborted after six weeks. On 28/3 and 31/3 he was given injections like before and the treatment was then stopped.

21-6-1941.

Quantity of semen—2.0 c.c.
Consistency—Creamy.
Number of spermatozoa per c.c.—33,000.
Motility—Good in 50%.
Abnormalities—Present in less than 20%.

5-2-1942.

Quantity of semen—2.5 c.c.
Consistency—Creamy.
Number of spermatozoa per c.c.—3,333,000.
Motility—Good in 75%.
Abnormalities—In less than 20%.

The sperm picture is instructive, though the patient had no treatment for over 7 months. He was now given 3 injections of testicular hormone 5 mg. and follicular hormone 1 mg. Again his wife conceived but aborted after ten weeks. The patient gave up all treatment and presented himself for examination on 31st July, 1942.

31-7-1942.

Quantity of semen—3 c.c.
Consistency—Creamy.
Number of spermatozoa per c.c.—270,000.
Motility—Fair in 50%.
Abnormalities—Present in 30%.

4 injections like before were given in August. His wife conceived and aborted again. He gave up treatment.

Case LIX—Patient aged 54, wife 32. First marriage at 40, wife 41. This marriage lasted ten years and the present two years. No children by either marriage. At the age of 21, he had kept a mistress through whom he had three children. No history of venereal infection.

7-10-1941.

Quantity of semen—1.5 c.c.

Consistency—Creamy.

Number of spermatozoa per c.c.—17,070,000.

Motility—In 5% and that poor.

Abnormalities of the body—In less than 20%.

The patient was given 5 injections of testicular hormone 5 mg. and follicular hormone 1 mg.

15-10-1941.

Quantity of semen—1.2 c.c.

Consistency—Creamy.

Number of spermatozoa per c.c.—12,000,000.

Motility—In 5% and that poor.

Abnormalities of the body—In less than 20%.

The patient now had 16 injections of 5 mg. of testicular hormone and 1 mg. follicular hormone in the next 5 weeks. He was averse to collecting semen often.

13-3-1942.

Quantity of semen—1 c.c.

Consistency—Creamy.

Number of spermatozoa per c.c.—71,100,000.

Motility—Not present (bottle specimen).

Abnormalities—In less than 20%.

On the 15th and 17th March and on the 14th April, he had injections of 10 mg. testicular hormone and 1 mg. follicular hormone.

13-3-1942.

Quantity—1 c.c.

Consistency—Thinner than cream.

Number of spermatozoa per c.c.—46,700,000.

Motility—Fair in 10%.

Abnormalities—In less than 20%.

On June 4th, 5th and 6th he was given injections of 5 mg. testicular hormone and 1 mg. of follicular hormone. On July 2nd and 3rd he was given injections of 10 mg. of testicular hormone and 1 mg. of follicular hormone. The same treatment was repeated on July 26th and 28th.

18-8-1942.

Quantity—1.5 c.c.

Consistency—Creamy.

Number of spermatozoa per c.c.—53,330,000.

Motility—Fair in 5%.

Abnormalities—In less than 20%.

The patient gave up treatment.

Case LX—Patient aged 35 and wife 27, married 13 years. History of gonorrhoea some years back.

31-1-1941.

Quantity—5 c.c.

Consistency—Creamy.

Number of spermatozoa per c.c.—41,300,000.

Motility—In 50%.

Abnormalities—In less than 20%.

From 23-3-1941 to 20-4-1941, he had 14 injections of testicular hormone 5 mg. combined with follicular hormone 1 mg.

11-7-1941.

Quantity—3 c.c.

Consistency—Creamy.

Number of spermatozoa per c.c.—66,700,000.

Motility—In 60%.

Abnormalities—In less than 20%.

The patient stopped treatment and the end result is not known.

Case LXI—Patient aged 28, wife 25, married 3½ years. Gonorrhoea 3 years back.

19-5-1941.

Quantity—2 c.c.

No spermatozoa found.

On 20, 22, 28, 30th and 31st May and 2nd June, he had injections of testicular hormone 10 mg. and follicular hormone 1 mg.

3-6-1941.

Quantity of semen—5 c.c.

No spermatozoa found.

10-6-1941 Testicular hormone 5 mg. and follicular hormone 1 mg.

11-6-1941 Gonadotropic hormone 200 units.

12-6-1941 Same as on 10th.

14-6-1941 Same as on 10th.

15-6-1941 Same as on 11th.

16-6-1941 Same as on 11th.

I cannot trace the semen report at the end of this course of treatment. The only interesting feature is the increase in the quantity of semen from 2 c.c. to 5 c.c. after the combined treatment.

SUMMARY

The cases quoted may look, in one sense, inconclusive as far as the end results are concerned. The following points, however, stand out clear :

1. Small doses of testicular hormone administered in combination with small doses of follicular hormone increase the quantity of semen, the sperm count and the vitality of the spermatozoa and exert very little depressional effect.

2. Large doses of testicular hormone often depress the testicular functions.

3. In cases of sexual infantilism, high doses of the testicular hormone should be administered, preferably combined with small doses of the follicular hormone, to be followed by small doses of both the hormones. In aspermia associated with this condition or caused by other endocrine factors, I have not been able to induce spermatogenesis by any line of treatment. In the cases described, the testicles were normal in appearance and to the touch. Testicular puncture was, however, not done and the patency of the vas was not tested in any of them.

4. Gonadotropic hormone seems unnecessary as the testicular and follicular hormones give excellent results.

5. The follicular hormone in 1 mg. doses causes in some men tenderness and enlargement of the nipples and so only 0.25 to 0.5 mg. should be administered when the treatment is likely to be prolonged. Tablets of the follicular hormone are available for oral administration but I have not tried them in defective spermatogenesis. As the effective dose of hormones by mouth is about six times that when given by injections, 3 mg. of the follicular hormone tablets will have to be the daily dose.

6. In cases of defective or absent spermatogenesis associated with general or sexual infantilism, thyroid should be prescribed orally along with the other hormones.

7. In all other cases diagnosed to be due to endocrine factors, the treatment indicated is a combination of small doses of testicular and follicular hormones. If this line of treatment shows no improvement, a course of, say 6, injections of the gonadotropic hormone in doses of 200 units may be tried. It

is, however, necessary to make sure that the causative factor is endocrinal and not organic. Vitamin E may also be administered with the hormonal treatment.

8. In many of the cases, short courses of treatment were given every month. The idea behind it was to increase the quantity of semen, activate the spermatozoa and increase their count temporarily from the 11th to the 15th days of the wife's menstrual cycle.

9. The vasa and fallopian tubes are analogous in structure and occlusion in one may be compared to occlusion in the other. M. White tried to restore patency in 13 cases of occluded fallopian tubes with injections of follicular hormone. In 10 cases, the tubes became patent without any operative treatment. This experiment was based on Claudberg's theory "that oestrin stimulation induces hyperaemia and hence increased development with expansion of the tubes . . . He suggested that this treatment might be applied to improve the state of pathological tubes in cases other than those of under-development." This encourages the belief that testicular hormone alone or combined with follicular hormone should do likewise, at least in some cases of occluded vas. The treatment is worth trial.

XV

STERILITY IN THE MALE (*Continued*)

ORGANIC ASPECTS, INVESTIGATION AND TREATMENT

ORGANIC ASPECTS

The organic causes of male sterility may be local, such as malformations or diseases of the sex organs, or general, such as constitutional disorders and extrinsic and intrinsic poisons. Among the local causes, the more important are atrophy of the testicles, usually due to injury, hypospadias and epispadias, severe stricture of the urethra, varicocele, orchitis, hydrocele, cryptorchidism, chronic prostatitis and obstructions in the ejaculatory duct, vas or epididymis. Constitutional disorders depress vitality and upset the process of spermatogenesis, producing defects in the quantity or quality of the spermatozoa.

LOCAL CAUSES

When the testicles are atrophied, there is no remedy for it. Atrophy of both testicles is seldom seen and then the patients show signs of eunuchoidism. For *hypospadias and epispadias* Dreutzmann recommends a simple treatment and this is to have coitus wearing a condom in which a small opening has been made at its distal end. Stricture of the urethra may cause sterility by preventing a sufficient quantity of semen being deposited in the vagina. I know a man who has hypospadias and a severe resilient stricture and yet he is a father. Dreutzmann does not think that chronic prostatitis is a cause of sterility because, he says, "I have examined men with families in whom the prostatic secretion was loaded with pus cells." Lane-Roberts is of opinion that prostatitis causes blockage of the ejaculatory ducts, but the condition is temporary and reacts to treatment. Chronic seminal vesiculitis, according to Dreutzmann, produces "a depressant action on sperm, reducing their motility to such a degree as to prevent conception. Long continued massage and heat will remedy this condition."

Orchitis causes sterility as it damages the testicular tissues. The common causes of this condition are injury, "typhoid, small-pox, mumps, malaria, syphilis, influenza, glanders and

undulent and cerebro-spinal fevers. The most important of these are the acute orchitis of mumps and the chronic orchitis of syphilis." *Cryptorchidism* may, though not necessarily, cause sterility. As regards varicocele, Lane-Roberts says: "From the point of view of fertility, varicocele is important only if it causes impairment of testicular circulation, for chronic passive congestion is likely to exert a direct action on spermatogenesis. Operative treatment is seldom necessary or even advisable. Corner and Nitch reported that 84 per cent. of patients who had undergone such treatment showed signs of degenerative changes in the testicles. Some of these changes were probably due to causes other than the operation, but the figures are sufficiently alarming to make the most enthusiastic of surgeons hesitate before recommending operative treatment of varicocele as a means of increasing a patient's fertility. In most cases a good suspensory bandage provides a satisfactory alternative." *Hydrocele* usually indicates some inflammation and dysfunction of the testicular tissues and hence impairment of spermatogenesis.

Obstruction in the Vas Deferens—Obstruction in the vas deferens is a fairly common cause of sterility. In these cases, a normal quantity of semen may be discharged, but there will be no spermatozoa in it. According to Dreutzmann, "when the testicles are normal, one can be certain that the lack of sperm is due to obstruction. It is then important to establish the exact point where it occurs so that the proper treatment may be given to overcome the obstruction."

Though this may be true, it is advisable before testing the patency of the vas to puncture both the testicles and examine the fluid for spermatozoa. If the result is negative, there is no need to undertake the more difficult procedure of testing the patency of the vas.

Aspiration of the Testicles—The method advocated by Max Huhner is simple. He advises: "A small area of the skin of the scrotum is painted with iodine, the testicle is held firmly against the skin, and a rather large bore sterile needle attached to an ordinary hypodermic syringe is plunged through the skin into the body of the testicle and epididymis. Aspiration is immediately commenced and kept up while the needle

is being slowly withdrawn. A small amount of collodian is poured over the puncture, and this completes the entire operation.

"The point of the needle is then put directly on the slide and a small amount of the aspirated fluid is expelled, covered with a cover glass, and immediately examined under the microscope. This portion of the technic is rather important, for if we first expel the air from the needle, as is the custom in ordinary hypodermic manipulations, we may lose the major portion of the spermatozoa, which, in many cases, seem to adhere to the very point of the needle.

"If no spermatozoa are found, we expel a little more of the aspirated fluid on another slide and examine this as before; we continue to do this until either spermatozoa are found or the entire fluid has been examined. Sometimes it takes quite a long time before some are found. As a general rule if one is found, more will be found in that particular location.

"The number of spermatozoa found are very few. Sometimes they exhibit motion, but rarely the very active motion seen in a condom specimen. We often find motionless spermatozoa, but these must not be considered dead, as is the case in a condom specimen; they are simply spermatozoa which have not started to move, as they have not yet been brought under the stimulating influences of the prostatic and other genital secretions.

"Although I have done about 100 aspirations I have never had any bad results following this procedure. The pain is quite sharp at times and is testicular in character, for anaesthetizing the skin has no effect on the pain. It is often felt more in the region of the inguinal canal than in the testicle itself. Pain disappears within a short time, though on one occasion, in a particularly nervous individual, it lasted for the entire day."

Both the testicles should be punctured. I think it is advisable to aspirate the testicle and epididymis separate unless the operator has considerable experience of the procedure. If spermatozoa are found in the former and not in the latter, there is some blockage in the epididymis. The aspirated fluid should be examined immediately. The skin may be infiltrated with a local anaesthetic, though, as Huhner says, it is not necessary.

Testing the Patency of the Vas—The hair is shaved and the parts prepared as for an operation. The vas is now located and fixed by an assistant. Dreutzmann's method has the merit of being very simple. He says, "To determine the patency of the vas, I inject solutions into the lumen through small incisions made in the scrotum. For injection material 5 per cent. mild protein silver is used on one side and 2 per cent. mercurochrome on the other. Before the injections are made, a urethral catheter is inserted into the bladder. When both vasa are patent, the solutions appear immediately from the outer end of the catheter. If one solution does not appear, one knows definitely which side is blocked. I have attempted to relieve the obstruction in the vas by passing fine probes or forcibly injecting solutions into the lumen, but with only occasional success. One is handicapped by the fact that this is an operative procedure and repeated attempts cannot be made as in the case of a urethral stricture."

Fine bore needles should be used for injecting the solutions and even then the operation is difficult and should be undertaken only by an experienced surgeon. In one of my cases, no fluid came out through the catheter, but the patient had an emission in the night and this was stained with mercurochrome, the solution used.

Blockage of the vas is associated with infections of the epididymis, prostate and seminal vesicles. According to Lane-Roberts the condition is transitory and clears up without any treatment except in tubercular infection. This is almost always incurable. He writes: "The commonest cause of obstruction of the vas is trauma, especially surgical trauma inflicted during the course of an operation for hernia. This incident is by no means rare, and since division of the vas—provided that the blood supply of the testicles has not been damaged—does not lead to atrophy, the patient may not realize that his fertility has been affected.

"A suspicion that the vas is blocked can be confirmed by isolating it at the neck of the scrotum, puncturing its walls with a hypodermic needle and injecting fluid in the direction of the prostate. If this cannot be done, it indicates that there is an obstruction either in the vas itself or in the ejaculatory duct. By using collargol or any other fluid opaque to X-rays, the

exact situation of the obstruction may be localized." In *Sterility and Impaired Fertility* by this author are described various operative treatments adopted to relieve obstructions of the vas. Readers who are interested may refer to this book.

Obstruction in the Ejaculatory Ducts—Dreutzmann says: "Stenosis of the ejaculatory ducts can be determined by the failure of the seminal vesicles to empty after massage and the absence of seminal fluid in the expressed secretion. The patient also gives a history of pain or burning sensation in the perineum or rectum at the moment of ejaculation and in some cases several hours afterward. The treatment is to dilate the ducts with bougies passed through a urethroscope."

Obstruction in the Epididymis—Dreutzmann writes: "When both vasa and ejaculatory ducts are patent, the absence of sperm is due to an obstruction in the epididymis. In these cases the most successful treatment is Hagner's method of anastomosing the vas deferens to the efferent ducts of the globus, thereby sidetracking the epididymis."

GENERAL CAUSES

As regards general causes of sterility, chronic infections are important though often neglected. Lane-Roberts says: "At first sight, this might seem a matter of academic rather than practical importance. It is not easy to believe that fertility can be enhanced by the removal of septic teeth or attention to a chronic sinusitis; but the fact that it can is clinically well established and supplies a reason for making a searching inquiry into the possibility of chronic sepsis in the routine examination.

"Chronic infections like syphilis and long-standing malaria have long been known to depress fertility. As pointed out, the incidence of sterility amongst syphilitics is 23 per cent., in contrast to an estimated 10 per cent. among the general population. It is probable that chronic malaria is almost as detrimental to fertility, but figures are not available."

Among extrinsic poisons are included alcohol, morphia, opium and lead and among intrinsic poisons hepatic insufficiency, colonic stasis and disordered metabolism, as in diabetes mellitus. Constitutional disorders depress vitality and all physiological processes of the body including spermatogenesis. Last

but not least should be considered the age factor in sterility. Certain disorders, constitutional or endocrine, which may not cause sterility in healthy young men, may do so in the middle-aged and elderly.

DIAGNOSIS OF THE CAUSATION OF STERILITY

Defects in semen and spermatozoa are easily detected, as was mentioned, by an examination of semen. This should be the first procedure in all cases of sterility. In complete absence of semen, psychic factors should be excluded by patient questioning and patency of the urethra and ejaculatory ducts should be tested. If no spermatozoa are found in the semen or fluid discharged after coitus, any ejaculate he might be getting after masturbation or as nocturnal emissions should be examined for them. If the result is negative, direct testicular puncture should be done and the fluid extracted examined under the microscope. If spermatozoa are present in this but not in the semen discharged, it may be assumed that the vas is blocked somewhere. The treatment for this condition is beyond the scope of the general practitioner. If spermatozoa are not present even in the fluid aspirated from the testicles, the defect is due to endocrinal factors and treatment as outlined in the previous chapter should be instituted.

Venereal infection and diseases of the blood should be excluded by serological tests. It is also necessary to go into the detailed history of the case, as often unimportant factors, which by themselves may not cause sterility, become significant when associated with defective conditions of the spermatozoa. It is a well known fact that when a couple do not want children, they have far too many. As a matter of fact, I know cases where every coitus resulted in pregnancy. On the other hand, there are cases where couples in spite of the best available and most scientific treatment remain sterile. All the same, even general practitioners can help in a good portion of cases of sterility without operative or other specialised treatment.

RACIAL AND HEREDITARY FACTORS

There are apparently racial differences as regards fertility. The Jews are notoriously prolific and so also the Marwaris. The fertility of the Jews is explicable scientifically, apart from

racial peculiarity, because of certain religious taboos as regards days on which coitus should be indulged in.

In the old Testament, "ritual laws relating to the menstrual cycle are designed to ensure fertility. First, conjugal intercourse is prohibited within at least twenty-four hours of the expected menstruation; second during menstruation, and however brief the process may be it must be assumed to last at least five days; and third, for seven days after the fifth day the woman must take ritual baths to clean herself, and if the menstruation lasts longer than five days, then seven days after the last day. What is the result of these laws?

"Assuming that a woman has twenty-eight day cycle, which is the most frequent, she will ovulate on the fourteenth day of her menstrual cycle (calculated from the beginning). As sexual intercourse is forbidden during the five days of menstruation and the following seven days, she can only engage in intercourse on the thirteenth day. In that case the spermatozoa will be waiting in the abdomen for the birth of the ovum in order to fertilize it.

"Thus the laws laid down in the *Third Book of Moses* promote the fulfilment of the commandment of the First to 'increase and multiply,' as sexual intercourse on the thirteenth day was almost always bound to lead to fecundation. This explains the great fertility of orthodox Jews, who strictly observe the above laws."

As regards Marwaris, the increased fertility may be due to their having sexual intercourse almost daily. The day of ovulation is variable and daily coitus would, therefore, mean that this day is not passed over inadvertently. Balzac has pertinently remarked that, "the Divinity that presides over maternity is chance."

The hereditary factor is said to be important in sterility. I am not convinced of this, as I know sterile men and women whose parents, brothers and sisters have many children. This much I see, that in most families the number of children is getting less and less, generation by generation. This may be partly deliberate but there may also be other causes which are not understood at present. It is said that incompatibility is a cause of sterility. This means a man or woman may have a

child with one woman or man but not with another. There can be no scientific explanation for this, unless we accept the view that spermatozoa have a selective action, i.e., they can impregnate only ova of a particular type and so on.

CONTRACEPTIVES AND STERILITY

Another point that needs investigation in cases of sterility is whether the couple are using any contraceptive and if so what type. That the use of scientific contraceptives does not cause damage to the female parts or permanent sterility is the accepted view at present. "It is generally agreed that contraceptive methods which involve the use of intracervical stems, studs and similar devices may, indeed often do, result in inflammatory changes in the cervix and endometrium with consequent sterility. The dangers of these methods, however, have long been recognized, and it is very doubtful if, in the English-speaking countries, more than an insignificant proportion of women who practise contraception use them. But the theoretical objections against some of the more widely used devices—for instance, against vaginal diaphragms and chemical suppositories, of which it is alleged that they may cause chronic inflammatory changes in the cervix and thus sterility—do not appear to be supported by statistical evidence. Dickinson (1938) has not been able to correlate cervicitis or sterility with contraception except in cases in which the devices used were of the intracervical type. In a study made in a British birth control clinic it was found that of ninety-seven women who stopped using contraceptives because they desired another pregnancy, ninety-six were successful; this was obviously an exceptionally fertile sample. The conviction of experienced gynaecologists who state that 'contraceptive measures in the early days of marriage are inimical to pregnancy later' cannot be completely discounted; but it does not appear to be supported by any controlled clinical investigations. The available statistical evidence is certainly far from adequate, but what there is, favours the view that the contraceptive methods in general use do not adversely influence fertility."

Sterility may be due to the wife's using some contraceptive device without the knowledge of the husband, as the following embarrassing case illustrates. I know two other cases, where

the women are using a contraceptive pessary without the knowledge of their husband.

Case LXI—A man brought his wife to ascertain whether she was pregnant. He was 52 and she 24 and they were married two years. Her menses were over-due by a fortnight. He wanted a child and hoped it was pregnancy. The wife, however, did not feel that she was pregnant. The man was very rich and extremely fond of his wife. She was very handsome with great sex appeal, an opera singer and a celebrated beauty in her country. As was to be expected, she was frivolous, fond of flirting and married her husband solely for his money.

I explained to the husband that examination may not help in diagnosing pregnancy at so early a stage but he was insistent that I examine his wife. I took the wife in and she asked me if I would keep a secret. I said I would and she made me promise. Then she pulled out a cervical cap from her vagina! She said that she had one fitted just before her marriage and used it at every coitus. She could, therefore, not be pregnant and if by any chance she was, would I help her to abort? I told her definitely that I would not. There was no need to examine her. She reminded me of my promise. I came out and told the husband that she should be taken to a gynaecologist, as I was only an endocrinologist. A fortnight later, the wife telephoned to say that she had her returns, thanks to the large doses of quinine she took. A year afterwards, I heard that she ran away with some other man.

MISCELLANEOUS FACTORS

The points to be elicited in the history of any case of sterility are: The age of the husband and wife, how long the marriage lasted, whether either of the partners had married before and whether there were children by that marriage, and previous relevant illnesses. The state of health of the partners at the time of investigation should be noted. The frequency of intercourse and whether this is confined to any particular days in the menstrual cycle of the wife should be enquired into. Often it is found that the old notion that a woman can become pregnant only just after or just before menstruation is still widely prevalent even among educated couples and, therefore, they have been having intercourse only during these days and not during really fertile days, *viz.*, the middle of the menstrual cycle.

Hyperacidity of the Vagina—A point often of importance in cases of asthenospermia is the acidity of the vagina. Nature has made ample provisions for the vagina, which is normally

acid, to be alkaline at the time semen is deposited in it, as spermatozoa are soon destroyed in acid surroundings. The secretions of the vulvo-vaginal glands which secrete actively during sexual stimulation are alkaline and neutralise the vaginal acidity. The secretions of the glands of the male urethra during sexual excitement neutralise any acidity that may be produced in it by urine. The vagina may occasionally after coitus remain acid in reaction owing to insufficient sexual stimulation or to high normal acidity. This can easily be tested with litmus papers. The test should be done *immediately after coitus*. If there is much acidity, even in spite of prolonged love-play, an alkaline wash should be prescribed to be used just before coitus. This may be soda bicarb. $\frac{1}{2}$ dr. to a tumbler full of cold water or Dankin's solution. Hot water should not be used.

NON-MEDICAL MEASURES

Coital Postures—The coital posture adopted is important in cases where the spermatozoa are few in number or of low vitality. It is recognised that even when semen falls outside on the vulva, pregnancy may result, but these are in cases where the spermatozoa in it are healthy and the woman normal organically and endocrinally. In Malabar, where the astride position is the usual rule, fertility is in no way less than in other places where the supine position is ordinarily adopted.

Coital postures that help to retain semen in the vagina and near the cervix help fecundation. These are :

1. The woman on her back with thighs flexed and a cushion under her buttock.
2. The knee-elbow position.
3. All positions of acute flexion, i.e., when the thighs of the woman are raised above her body.

Relative Sizes of the Copulatory Organs—It is believed by many that when the wife enjoys coitus and gets her orgasm, there is greater chance of her becoming pregnant. This is true to some extent, but it is known that women who are not in love with their husbands or who are frigid become pregnant, so also girls and women when they are raped. One of the factors

favouring the woman's getting her orgasm is the proper adaptation between the copulatory organs. Adaptation even when the organs are disproportionate in size can in most cases be effected by certain coital postures, such as the following :

When the penis is disproportionately long, the knee-elbow position is most suitable. Postures in which the woman's thighs are touching are also suitable, especially when a cushion is kept under her buttock.

When the penis is thick and the vagina narrow, the acute extension position with the thighs of the woman separated or Walcher's suspension are suitable. In these postures, however, the semen drains out of the vagina.

When the penis is short, the postures suitable are Walcher's suspension, acute extension and acute flexion. If a cushion is placed under the loins, the vaginal canal is shortened still further.

It may be repeated that impotence and sterility are two different conditions and the one causes the other only when there is neither erection nor ejaculation. I know cases where men had coitus with a semi-erect penis and ejaculated soon after intromission impregnating their partners. Absence of ejaculation as a cause of sterility has already been explained.

DYSKYSIS

Some cases of sterility are now recognised to be really caused, not by the partners being sterile in the accepted sense of the word, but by early abortions, which are seldom recognised. This condition is known as dyskysis. In such cases, the fault is either syphilis in either of the partners or some endocrinal defect in the woman. The treatment recommended in the latter case is injections of luteal hormone in 2 mg. doses given twice weekly up to the 12th week. Luteal hormone may be given orally, one tablet of 5 mg. daily, up to the end of the third month. Vitamin E in 3 mg. doses daily is also prescribed. These cases are difficult to diagnose as they appear like delayed menstruation. It is worth investigating whether defects in sperms may not make pregnancy unstable and cause abortions. I call attention to Case LVIII. The wife was certified to be

normal by a gynaecologist. The sperms of the husband were not normal to begin with. Whether the abortions were caused by this or by some factor that developed in them by the treatment given is not easy to say. The subject needs further study.

STERILITY IN LATER YEARS OF MARRIED LIFE

By this is meant that the couple had one or more children and then were sterile. The causes of this condition may be in the husband or the wife. The commonest are venereal infection, especially gonorrhoea, or constitutional disorders in either of the partners or some trauma to the genital organs of the woman during confinement. This type of sterility may also be due to the early development of menopause, which is common when maternity begins at a young age. In India, for instance, early cessation of fertility is common and can reasonably be attributed to this cause. In a study conducted among 480 Hindu couples residing in the Kistna District of the Madras Presidency, it was found that the woman ceased reproduction on an average at the age of thirty-one. "11.6 per cent. of the total females who had married life up to their fortieth year ceased reproduction when they were aged 20 years. 14.0 per cent. of the females ceased reproduction when they were aged above twenty-one years but below twenty-five years, 26.7 per cent. ceased reproduction by the time they were aged twenty-six to thirty years and 23.5 per cent. by the time they were aged thirty-one to thirty-five years. 16.2 per cent. and 8.0 per cent. ceased reproduction when they were aged thirty-six to forty and forty-one and above respectively."

One, if not the chief cause, of this state of affairs is the fact that reproductive activity started at a very early age, as the following figures show. "5.7 per cent. of the women became mothers at the age of thirteen, 18.9 per cent. at fourteen, 20.2 per cent. at fifteen, 16.3 per cent. at sixteen, 11.0 per cent. at seventeen, and 10.6 per cent. at eighteen. Those who became mothers at nineteen and twenty formed 6.4 per cent. and 1.8 per cent. respectively of the total number of females."

The study was not scientifically controlled in the sense that no physical, bacteriological or endocrinal investigations were carried out to ascertain whether any of these factors operated

in making the couples sterile. It is also not known how many of these couples had one child sterility. As regards the number of children born per female and the interval between successive births, the author of the study writes :

“The females under consideration reproduce very rapidly. 13.5 per cent. of the females have an interval of one year and less than one year between each confinement. 21.0 per cent. of the females have 1.6 to 2.0 years; 18.3 per cent. of the females have an interval of 2.1 to 2.5 years; and 9.5 per cent. of the females have 2.6 to 3.0 years. The rest have an interval of more than three years between each confinement.

“The short intervals between marriage and nuptials, between nuptials and commencement of motherhood, between commencement of motherhood and first confinement, and later on between each child-birth bring into existence a race whose duration of life is very short. A large percentage of the newly born infants die before they complete their first year. The average expectation of life of the Indian is very brief.

“In addition to the above described quick succession of events, the female gives birth to six or seven children by the time she is aged thirty-one years. Those who had less than five children by the time they ceased reproduction formed only 32.6 per cent. of the total females. 52.3 per cent. of the females had five to nine pregnancies each. 12.8 per cent. of the females had ten to fourteen pregnancies each.”

This opens out a new line of speculation, *viz.*, does early beginning of reproductive activity, lead to early extinction of the ovulatory function ? It must, however, be remembered that sex activity and reproductive activity are quite different. From the facts known about men, and to a less extent in women, it is definite that early commencement of *sex* activity does not cause its early extinction. As regards reproductive activity, if the above study has any scientific value, it appears that early commencement of maternity *may* cause early extinction of this biological function. The fact should be kept in mind in cases when couples who complain of sterility in later years of marriage come for treatment.

ARTIFICIAL IMPREGNATION

Artificial impregnation should be tried when no defects are noticed in the semen or when the sperm count is fairly low before giving up cases of sterility as incurable. In cases when the husband is sterile or completely impotent, artificial impregnation with donated semen may become necessary if much wealth and property are involved. Some historical and practical facts about artificial impregnation are described.

About the year 1780 Larzaro Spallanzani, an Italian scientist, injected into the uterus of a spaniel bitch while it was in heat the semen taken from a dog of the same breed. Conception ensued and three puppies were born. Shortly afterwards, John Hunter was successful in the first human insemination. For the next hundred years, the subject received very little attention. In 1899, Ivanoff began his work in Russia by artificially impregnating mares. His experiments were a great success. The work, however, had to be suspended from 1914 to 1923 because of the last world war.

According to the figures of the Moscow Experimental Station, up to 1932, two million cows, three million ewes, 650,000 mares and 200,000 sows had been successfully impregnated. In a breeding season of forty days, it is possible to fertilise 400 ewes by one ram, while in a sixty days season for cattle breeding, 1,200 to 1,500 calves can be sired by a single bull.

Since Hunter's success, artificial insemination has been occasionally attempted in human beings. Rohleder enumerated 123 cases with 47 successes up to 1924. In 1928, Englemann brought up Rohleder's total to 185 cases with 65 successes. It will be noticed that there is great disparity between the results on human subjects as compared with those on animals, where it has been attended with even more favourable results than with natural mating. Rohleder believes that this disparity is due to the fact that insemination in human beings is resorted to only as a last resource and that also only in cases where obstacles to fertility already exist.

There was another even more important cause for past failures and that was that the operation was carried out on any day in the menstrual cycle without proper appreciation of the time of ovulation. Artificial impregnation will be effective

only if it is carried out within twenty-four hours after ovulation or forty-eight hours before it.

Another factor that is of practical importance is as to how the operation is carried out. The cervical canal is the natural habitat of spermatozoa. This is proved by the observations of Quinlan, Mare, and Rouse. They found that the majority of spermatozoa ceased to be motile in the vagina even in twelve hours, while in the cervical canal, they were actively motile even after twenty-four hours. This shows the favourable effect of the cervical secretion on the spermatozoa. The cervical canal is now believed to act as a store-house for the spermatozoa which pass on from there to the uterus in small batches. These facts suggest the desirability of injecting semen in artificial insemination into the cervical canal rather than into the vagina or uterus.

A fourth factor that has a material influence on the success of artificial insemination is the method of collecting the semen for the purpose. The usual procedure is to collect it in rubber sheaths after coitus. Rubber has a deleterious action on spermatozoa, and in many cases, it is found that when the semen is collected in rubber condoms, all the spermatozoa appear dead. The best way will be to discharge semen after masturbation or coitus direct into sterile glass tubes. If the condom method is to be used, skin sheaths, previously rinsed out in saline, should be preferred.

As far as possible, the semen of the husband should be used. If his seminal fluid does not show any spermatozoa, the testicles and epididymis should be punctured and the fluid examined for them, as occlusion of the vas, as was mentioned, is not an uncommon cause of male sterility. Spermatozoa unmixed with secretions of the prostate and seminal vesicles are inactive, and so when taken from the epididymis or testicle, they will have to be activated artificially by adding chemicals like strychnine, or brucine or Ringer's solution. The composition of the latter is,

Soda Chloride	..	..	7	grms.
Cal. Chloride	..	..	0.026	grms.
Pot. Chloride	..	..	0.55	grms.
Aqua up to 1,000 c.c				

In case the husband has no spermatozoa, donated semen should be used. In this case there are certain preliminary procedures and precautions to be taken. It is a safe plan to select a donor from the middle-aged group who has proved himself successful from a business and worldly standpoint. Such selection precludes inherent characteristics like schizophrenia which might later appear in life, if a young man is selected. A thorough examination should be made of the prospective donor, which includes an elaborate blood test, Wassermann and complement-fixation test for gonorrhoeal infection, and so on. A mental examination and careful search into his personal history are also required. If the donor is mentally or physically defective, the child may be defective.

The donor's ancestry should be enquired into. It is considered wise to select a donor of the same race, caste and colour, who has the dominant characteristics of the father because then the child, as far as is possible under the circumstances, will resemble the latter in physical characteristics. I know the case of a wife who was artificially impregnated with donated semen by a gynaecologist in Vienna. While the father and mother were fair complexioned, the offspring turned out to be of the negroid type, which indicated that the donor had in some past generation negroid blood in him. This shows how necessary it is to go into the ancestry of the donor for at least a dozen generations.

Every effort should be made to match the gross physical characteristics of the biological father with those of the social father. For example, if both the father and mother have brown eyes and the baby is blue-eyed, it would be a constant source of irritation to both the parents. It would be necessary, therefore, for the donor's brown eyes to be a dominant characteristic. The donor should also belong to the same blood group as the father or mother.

The legal precautions should not be neglected as these are very important for the protection of the legal status of the child, the physician, the mother herself and the donor. Partly for this reason, the surgeon who does the artificial insemination should not attend the birth of the child. A doctor who knows nothing about the induced pregnancy should be called in to

attend the confinement, as he can then issue the birth certificate as to the parentage of the child in all good faith. The written consent of both the husband and wife should be secured before the operation is performed. The donor should be kept ignorant of the identity of the couple, as otherwise if he is unscrupulous, he may start blackmailing.

Huhner claims to have done 140 artificial inseminations between 1915 and 1917. He does not say in how many cases he had successful results. The method he recommends is as follows :

“The method I have employed after much experimentation, aims at asepsis rather than antisepsis. The husband is instructed to wash his penis with soap and water before intercourse, and to form a cuff of the outer end of the condom, so that it may be removed after coitus without the fingers or anything else coming in contact with its inner side. The condom is tied down, so that during transportation, the semen may not come in contact with the upper portion which had come in contact with the penis. When ready for use, the outside of that portion of the condom containing the semen, is washed slightly to rid it of any vaginal mucous, and a small area is painted with iodine. A large size sterile needle, attached to a sterile syringe, is plunged through the iodine area on the condom and some of the condom contents sucked in. It is then immediately slowly injected just within the cervical os. If the operator prefers to make the instillation with a canula attached to a syringe, he may carefully nip a small hole in the condom with a scissors, above the level of the semen, but still in the iodized area and obtain the semen in this manner. Care should, however, be taken not to inject the semen into the fundus of the uterus for fear of injecting it into the tubes and thereby causing severe cramps and possible complications.”

Lane-Roberts advises that in marked cases of oligozoospermia, the semen should be centrifugalised at high speed (2,500 revolutions a minute) for several minutes. This is to concentrate the spermatozoa in a small volume of liquid. The insemination, according to him, may be vaginal, cervical, intra-uterine or tubal. It may also be by the deposition method of Pust, i.e., by pouring the semen in a celluloid or metal cervical cap and fitting it on the cervix.

The method that may be safely employed by the general practitioner is the following. If the husband's semen is to be used, he is advised to wash the penis including the glans with soap and water before coitus. He indulges in prolonged love-play and has coitus but ejaculates in a small sterile bottle. The semen is poured into a sterilised celluloid or metal cervical cap which is fitted on the cervix, as advised by Pust. Insemination may be done into the cervix, with a syringe and cannula but then the injected semen drains out immediately. I see no reason why the method of Pust should not succeed if there is no occlusion of the cervical canal. This should be ascertained previously, but not the same day, by passing a uterine sound with antiseptic precautions. This, however, needs some experience.

If donated semen is used, the husband is advised to have prolonged love-play and then coitus immediately before the method of Pust is adopted. This is done in order to bring the parts into a state of sexual stimulation with its accompanying physiological changes. The semen should be inseminated as early as possible after it is ejaculated. The donor has to wash his parts and masturbate and a resourceful doctor would know how to get it to the woman's house within the prescribed time limit. The day of ovulation or a day before or after it should be selected for insemination. For this, the vitamin C test (Pillay, 1940) will be necessary. (See next chapter)

PART VI
THE FEMALE PARTNER

XVI

THE FEMALE PARTNER

SEX DISORDERS IN THE FEMALE

It has been suggested by friends who saw the manuscript of this book or with whom I discussed its planning that I add a section on the sex and genital disorders of the female. My experience as regards the treatment of these disorders is not so wide as in the male and so the suggestion was not accepted. It may, however, be pointed out that the causation of sex disorders in both sexes is the same and so also the lines of treatment. The endocrinal treatment should, however, be given with caution to women, because of their monthly physiological function, menstruation. Hormones, follicular, luteal or testicular, will upset menstruation, if used indiscriminately.

Frigidity—In frigidity, follicular hormone is usually prescribed. R. B. Greenblatt and his co-workers in their paper on *Sexual Libido in the Female* say: "It must be admitted that sentimental, psychologic and anatomical factors greatly influence the libido, nevertheless the role of the hormones is such that libido may be spoken of as a test tube chemical equation. Progesterone, the hormone of the corpus luteum, in chemically pure crystalline state may be administered to depress excessive libido when present; on the other hand, chemically pure androgenic substances when properly administered decidedly increase the well-being of the patients as well as the libido. Although the parenteral and oral administration of compounds of testosterone was frequently followed by increase in sexual urge, it was found that more consistent results could be obtained by pellet implantation. One hundred milligram dosage proved ideal. Pellets of testosterone propionate implanted subfascially are capable of proving of continuous prolonged nearly natural physiologic action. No fear of virilization need be entertained with this method and in dosages up to 400 mg. In almost every patient who once had known libido, a resurgence followed testosterone propionate pellet implantation.

"These facts may provide a working basis for treatment. The psychotic tendencies of the nymphomaniac, the neuroses

and unhappiness of the frigid female, and the problems of the incompatible couple, with their sociologic implications are amenable to hormone therapy. There is much that can be done for the individual whose life may be coloured by sexual frustration or sexual excess. The potentialities for correcting such maladjustments and for bettering human relationships may lie in the physician's hands."

Other workers recommended the testicular hormone in nymphomania and other hyperaesthetic sex disorders of the female—for just the opposite conditions for which Greenblatt and others recommended it. Here again, it is the dosage that causes the confusion. All hormones depress libido through their depressing action on the anterior pituitary gland, just as in males. In a few cases of infantile uterus and disorders of menses, I tried 5 injections on alternate days of follicular hormone 1 mg. combined with testicular hormone 5 mg. in the first half of the menstrual cycle and in the second half 3 injections of luteal hormone 2 mg. combined with testicular hormone 5 mg. on alternate days. The women who were not shy admitted experiencing libido and need for sex life during the course of the treatment.

An interesting point that was observed during the course of the treatment was tenderness and enlargement of the nipples and breasts. The combined treatment brings these on more markedly than treatment with follicular hormone alone was proved to my satisfaction, because one of the women had as much as 15 mg. of this hormone previously in the first half of the menstrual cycle without any increase in the size of the nipples or breasts. This line of treatment may, therefore, be tried with benefit in cases of undeveloped breasts. The treatment did not delay or otherwise upset the menstrual function.

J. R. Groome writing in the *Lancet*, 23rd September, 1939, says of a case he treated: the external genitalia were normal except for a small clitoris. The testicular hormone was introduced into the preputial sac as an ointment with a small syringe twice daily from the end of one menses to 4 days before the beginning of the next. The quantity was increased when the sac became bigger. The patient received in all 6.6 mg. of the hormone. A considerable increase in the size of the clitoris

and in libido was noticed and the result was permanent. Dr. Groome thinks about 7 mg. of the hormone administered over a period of 22 days cause enlargement of the clitoris without affecting the other genitalia or delaying the menstruation. This line of treatment may be tried, though it is difficult to understand how such a small quantity of the testicular hormone will increase erotization; nor is it recognised that the size of the clitoris has any relation to erotic feelings. It is probable that the manipulations of the clitoris had something to do with the increased erotization noticed.

Most cases of frigidity are, in my opinion, caused by the bad love technique adopted by the husband or by his feeble erection and poor retentive power. Some cases may be due to fixations and inhibitions. Anaesthesia or at least lack of interest in coitus is not uncommon in women accustomed to vulvar masturbation. In these cases, definite signs will be noticed in the external genitalia. These are discolouration, roughening and elongation of the labia minora, elongation of the clitoris and so on. The women addicted to any type of masturbation are usually very self-conscious and will even refuse to be examined by a doctor.

Sexual Hyperaesthesia—In the hyperaesthetic cases that came under my notice, the patients did not like to have any treatment. If treatment is found necessary or asked for, luteal hormone in 10 mg. doses combined with testicular hormone 10 mg. should be given. These injections are best not given in the first half of the menstrual cycle, as they may precipitate menstruation in some cases and delay it in others. Increased libido may be due to hypersensitiveness of the genitalia caused by an adherent prepuce of the clitoris, auto-erotic practices, thread worms and leucorrhoea. In these cases, besides treating the causative factor, the anaesthetic jelly mentioned before should be prescribed for application on the vulva, clitoris and in the vagina.

Sexual Neurasthenia—A large proportion of cases of neurasthenia in women can be traced to lack of adequate sexual satisfaction and they can easily be cured by satisfactory sex life. Greenblatt says :

“Many of the neuroses and ills of womenfolk may be traced to unhappy or unsatisfactory sexual relations. The wife

without sexual desire, unless she had histrionic ability or other charms, frequently finds her marital relations strained. So frequently the complaint of frigidity is dismissed by the physician as unworthy of consideration or as a condition about which nothing can be done. Frigidity may be absolute; it may be relative. When frigidity is relative, desire is present but coitus does not culminate in complete gratification. Frigidity may be due to psychogenic or anatomic factors with resultant dyspareunia or vaginismus. The need for a better understanding of this problem cannot be questioned. The medical complexities and the social implications are many. The successful treatment of frigidity may circumvent the disintegration of a marital union or prevent a man's search of extra-marital adventure with its dangerous consequences. The literature is almost void of contributions to the subject."

Recently, I have been studying the mental reactions of women whose husbands are impotent. There are cases on my record of men who when they consulted me have been married for three to six years and yet have not consummated marriage. There is a case of a couple who have been married three years. The first two years, the wife would not allow coitus because she did not want children, though she would let her husband have continuous love-play. The husband relieved his sex tension by masturbating, often even twice daily. Now the wife wants coitus, the husband finds his erection subsiding when intromission is attempted.

This is only one of many similar cases. The wives in almost every case showed signs of neurasthenia and sexual hyperaesthesia. That women have sex feelings and desire for sex relief and that frustration of these would lead to mental and physical ill-health is not recognised by society or the medical profession, even today. This should be considered as one of the causes of the increasing marital unhappiness and instability, so commonly noticed now-a-days.

It is my practice to question the wife separately when her husband complains of sexual weakness. Women are usually better informed of biological facts regarding sex than men, and they can be relied on to give instructive information on the nature and possible causation of their husband's disorder. A frigid woman is not an uncommon cause of male impotence.

while one who can take interest in coitus and enjoy it can cure most cases of psychic impotence in the male. Treatment of sex disorders of the husband would be easier if the co-operation of the wife is available.

STERILITY

Sterility in the female comes under the field of the gynaecologist and cases are referred to me only to ascertain or exclude endocrine causes. It is proposed to go only into this aspect of the subject based on the vitamin C test for ovulation. (Pillay, 1940)

THE VITAMIN C TEST FOR OVULATION

Note—THE FOLLOWING THREE PAPERS APPEARED ORIGINALLY IN *The Indian Medical Gazette* AND THEY ARE MODIFIED AND PUBLISHED WITH THE PERMISSION OF THE EDITOR.

I

VITAMIN C AND OVULATION (Pillay, 1940)

During the course of certain investigations on vitamin C in its relation to corpus luteum, I tested the urine of women on various days of the menstrual cycle for its vitamin C content. It was observed that the amount of vitamin C excreted varied from day to day, the lowest amount excreted being about the mid-menstrual period. In the graphs given below, the results are plotted and the peaks indicate the days on which the amount of vitamin C excreted is lowest.

According to the teaching of Ogino, the one constant feature in all menstrual cycles is the fact that the menstrual flow starts 14 days after ovulation. The peak in 15 out of the 24 graphs given falls on the day of ovulation, calculated on the teaching of Ogino. Increasing evidence shows, however, that there are anovular menstrual cycles and also multiple ovulations. These facts make the subject complicated.

Though the cases tested by me are too few to admit of generalizations, the graphs suggest that estimation of vitamin C in the urine may form an easy method for deciding the day

of ovulation. Other conclusions may possibly also be drawn from them. The graphs depict also anovular menstrual cycles and multiple ovulations.

I tested the urine of 11 women during 24 menstrual cycles. 15 cycles supported my contention. Out of the 9 atypical cases, 2 appear to be anovulatory cycles and 2 abnormal. One had yet no menstrual flow. No explanation seems possible in 4 cases.

The Test

The test is done as follows: The woman is given 300 mg. of vitamin C three to six hours before the test. One tablet of dichlorophenol-indophenol is dissolved in 50 c.cm. of water. Five c.cm. of the solution is pipetted into a beaker. Freshly voided urine is titrated quickly into this solution from a burette and the quantity required to decolorize immediately the blue of this solution gives the quantity of vitamin C present in a sample of urine. The test should be completed within two minutes after the urine is passed.

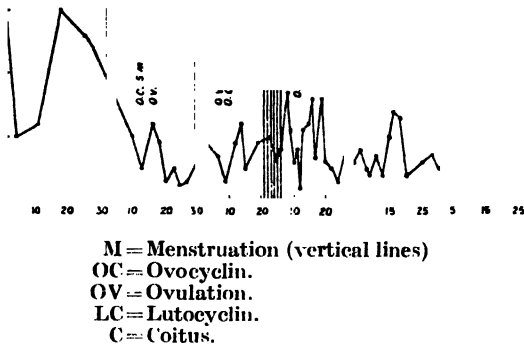
Unsurcharged urine is apt to give fallacious results as its vitamin content is liable to be affected by variations in diet and other factors. With urine highly surcharged with vitamin C, the daily variations of its excretion may often be so small as to be overlooked unless very careful observations are made.

Explanatory Notes About Graphs—In the graphs, the vertical figures indicate the quantity of urine in cubic centimetres required to decolorize 5 c.cm. of the dye solution and the horizontal figures the days of the menstrual cycle. 'Ovulation' means the date of ovulation as calculated by Ogino's teaching. 'M' means the menstrual flow.

Relevant notes on the cases are given, also available data as regards days of coitus. Follicular hormone (Ovocycin 'Ciba') was administered by injections in 5 cases and these are noted on the graphs. Their effects on the length of the cycle and on the menstrual flow are readily seen from the graphs.

The variations in the vitamin C content of the urine had no bearing on diet or on health, as the women were having their usual food during the tests and were generally healthy.

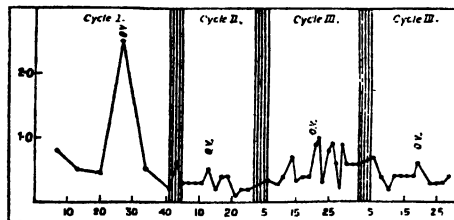
Case 1.



Case I—Unmarried, age 31. Menses fairly regular but flow unsatisfactory. Six cycles were tested. Note multiple ovulation in the fourth cycle.

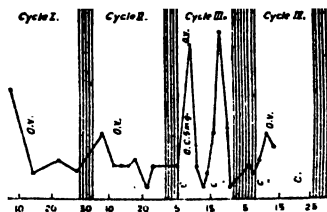
A graph of the urine of a male is given for purposes of comparison. Cycles in which no urine test was done on the day of ovulation are taken as positive when there was a peak round

Case 2.



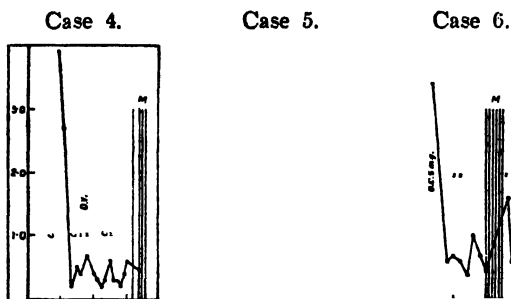
Case II—Unmarried, age 15. Menses irregular. Note multiple ovulation, in the third cycle. Four cycles tested.

Case 3.



Case III—Married, age 21. One surgical abortion nine months back. The first two cycles appear to be anovulatory, while the third shows multiple ovulation. Four cycles tested

about the ovulation date. The initial peak in each cycle indicates only that the woman was very deficient in vitamin C and its repeated administration for test purposes corrected the deficiency.

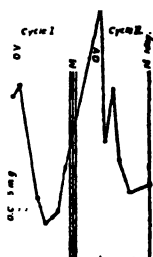


Case IV—Married, age 26. One child aged six years. A few hours' flow on the 32nd day, no flow on the 33rd day and three days, flow from the 34th day. Multiple ovulation (?)

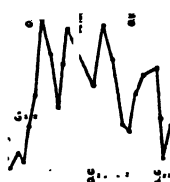
Case V—Widow, age 36. No pregnancy.

Case VI—Married, age 28. One pregnancy 12 years back. Very irregular cycle, often extending from six to seven weeks. Course of Ovocylin injections during the cycle under test.

Case 7

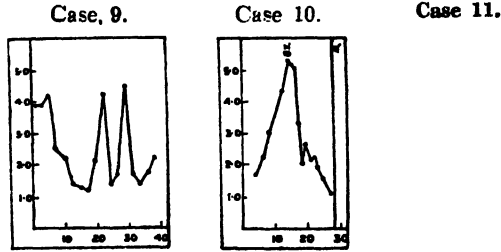


Case 8.



Case VII—Married, age 26. Two children aged 12 and 10 years. Remarks same as in last case as regards irregularity and treatment.

Case VIII—Married, age 35. Very irregular for the last four years, menses every four or five months. Last menses five months back. A course of Ovocylin and Lutocylin 'Ciba' during the two cycles under test was given. One day's flow in the first cycle and three days, in the second. As date of last menses was not known, an arbitrary date was taken as the beginning of the cycle.



Case IX—Married, age 25, three children, last being nine months old. No menses after that. A case of diabetes insipidus. Vitamin C deficiency was very great and the vertical figures are one-tenth of the actual figures

Case X—Unmarried, age 20. Tests carried out by Dr. (Mrs.) Socrates Noronha. Vertical figures are one-tenth of actual figures.

Case XI—Unmarried, age 24. Tests carried out by Dr. Noronha. Vertical figures are one-tenth of actual figures.

Case 12.

10 20 30 40

Case XII—Male, age 49.

II

THE APPLICABILITY OF THE VITAMIN C TEST IN ESTIMATING HORMONAL VARIATIONS

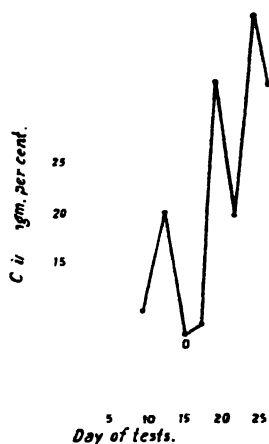
In the paper (Pillay, 1940) I answered in the affirmative the question—Does the quantitative estimation of vitamin C in the urine help to decide the day of ovulation? The following additional interesting findings based on the same test have since been observed by me :

(i) During the luteal phase of the menstrual cycle, the excretion of vitamin C in the urine is higher than during the follicular phase. Graph 1 illustrates this point.

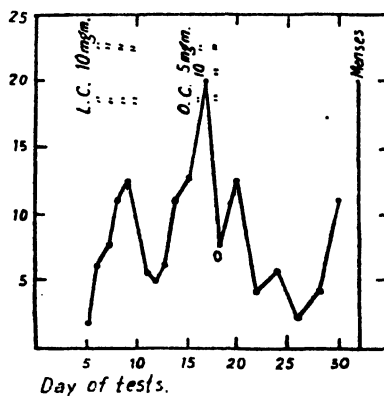
(ii) There is vast difference in the amount of vitamin C excreted in the urine when progesterone and oestrin are administered, large quantities being excreted during progesterone

administration and smaller quantities during oestrin administration. Graphs 2 and 3 illustrate this conclusion. Graph 2 is that of a case of severe secondary amenorrhoea and graph 3 that of a case of virilism.

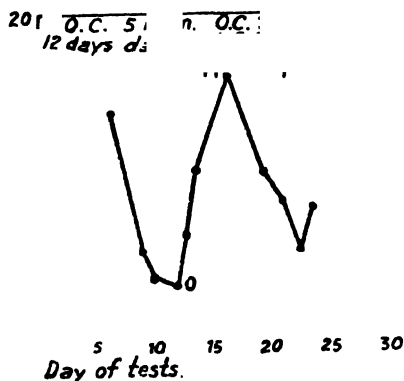
GRAPH 1
After 300 mgm. of Redoxon
for each test



GRAPH 2
After 200 mgm. of Redoxon for each test.



GRAPH 3
After 300 mgm. of Redoxon for each test.



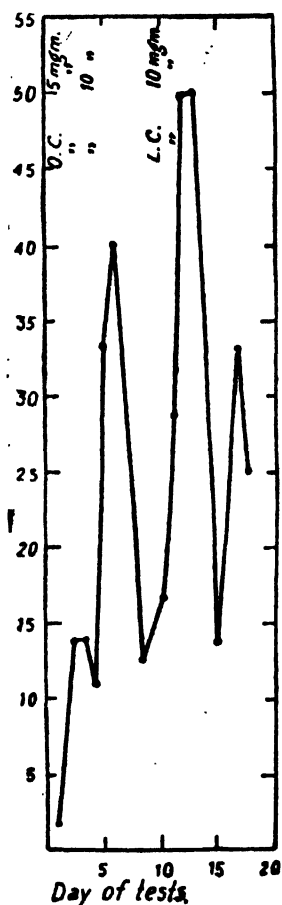
These findings make it legitimate to conclude that the estimation of vitamin C in the urine forms a method of gauging the amount of progesterone and oestrin present in the system.

At this stage of the investigation it will be rash to attempt to explain how and why this is so. The following possible explanations, among others, are offered. When progesterone

is present in excess in the system, as during the luteal phase of menstruation or when it is administered, the body requires or retains only small quantities of vitamin C. When progesterone is absent or deficient, as during the follicular phase of menstruation or when oestrin is administered, the system requires or retains large quantities of vitamin C. It might also be that progesterone takes place of vitamin C or acts in such a way as to enable the system to dispense with the necessity for large quantities of this essential vitamin. That the same variation in the excretion of vitamin C is seen in the male also during the administration of progesterone and oestrin lends colour to this supposition (graph 4).

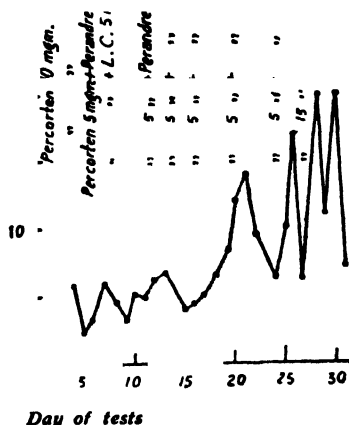
GRAPH 4 MALE

After 200 mgm. of
Redoxon for each test



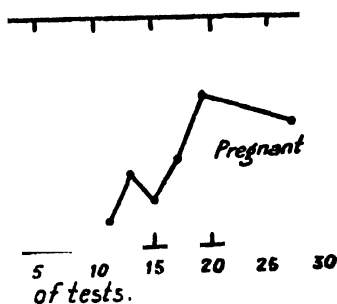
GRAPH 5 MALE

After 100 mgm. of Redoxon for each test



GRAPH 6

After 300 mgm. of Redoxon for each test



If progesterone acts on the system as a tonic, the interesting question arises as to whether any other hormones act likewise and have similar effects on the vitamin C excretion. Graph 5 is that of an elderly, aesthenic male during administration of adrenal cortex hormone and testicular hormone. The aesthenia steadily improved when the system became 'soaked' with these hormones and concurrently the vitamin C excretion in the urine increased.

What causes the decolorization of the dye solution is also difficult to dogmatize on. If it is not due to vitamin C itself, it may be that progesterone (or its excretion product, pregnandiol) decolorizes the dye solution or it liberates some other, as yet unrecognized, substance in the urine which causes the decolorization.

Whatever may be the explanation, the tests with vitamin C have many practical applications, such as estimating the deficiency of either of the ovarian hormones, their doses for therapeutic purposes, the time required to produce the maximal effect with them and so on.

(iii) According to Wilson, Randall and Osterberg (1939) large amounts of pregnandiol in the urine of a regularly menstruating woman immediately after she misses a period is indicative of pregnancy. Based on my findings, this means that the vitamin C excretion in the urine should be consistently high in cases of pregnancy. Estimation of vitamin C excretion in urine is therefore a probable test for diagnosis of early pregnancy. Graph 6 illustrates this conclusion.

There were a few atypical cases in my series, with low excretion of vitamin C during the luteal phase, but these only indicate a deficiency of progesterone in the luteal phase and not a fallacy in my conclusions. I consider the atypical cases lend support to my contention that the vitamin C test gives the measure of the deficiency of progesterone in the system.

The results of my experiments on the practical application of the vitamin C test in diagnosis and treatment of conditions such as amenorrhoea and sterility due to normal defects will be published later.

In the graphs published with my first paper, the vertical lines indicated the quantity of urine in c.cm. required to decolorize 5 c.cm. of the dye solution, while in the graphs given here, the vertical lines indicate the vitamin C content of the urine in mgm. per cent. This is arrived at by dividing 10 by the quantity in c.cm. of the urine required to decolorize 5 c.cm. of the dye solution, which is equivalent to 0.1 mgm. of *l*-ascorbic acid.

Summary—Estimation of vitamin C in the urine helps in deciding

- (a) the day of ovulation,
- (b) the type of the cycle, whether anovulatory, uniovulatory or multiovulatory,
- (c) the deficiency of either of the ovarian hormones in the system,
- (d) the dose of ovarian hormones required for therapeutic purposes,
- (e) the time the ovarian hormones takes to produce maximal effects,
- (f) the effects and progress of hormone therapy, and
- (g) whether a woman who has missed a period is pregnant.

III

THE APPLICATIONS OF THE VITAMIN C TEST IN THE DIAGNOSIS OF HORMONAL DISORDERS

In my first two papers on the subject (Pillay, 1940, 1940a), I explained how the vitamin C test for ovulation can ascertain:

(i) Whether a particular menstrual cycle is anovulatory uniovulatory, or multiovulatory.

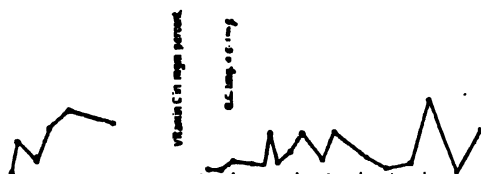
(ii) If ovulatory, the actual day of ovulation. The belief is still prevalent even among educated persons that conception can take place only just before or after menstruation. Knowing the day in a cycle on which alone the woman can conceive is most helpful in cases where the husband suffers from oligospermia and oozspermia. I am utilizing this test in the series of sterility cases I am at present studying.

(iii) Whether a woman is pregnant. It was mentioned that a consistently high excretion of vitamin C in the urine of a woman who has missed her 'period' is an indication of pregnancy. Graph 1 is the urine chart of a pregnant woman and graph 2 that of a case of secondary amenorrhoea.

(iv) In incomplete abortion also, there is a consistently high excretion of vitamin C in the urine. Graph 3 is that of such a case. The test may, therefore, be useful to diagnose whether any pieces of placenta are left in the uterus after abortion.

Graph 1

Graph 2.

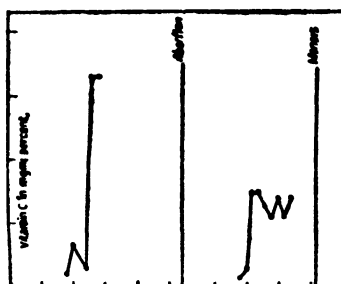


Days of the cycle.

Days of the cycle

(v) It was mentioned in my last paper (Pillay, 1940a) that during the administration of oestrin, the excretion of vitamin C in the urine is *low*, while it is *high* when luteal

Graph 3.



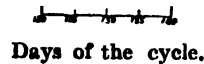
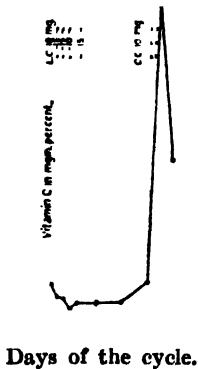
Days of the cycle.

hormone is administered. I find now that in pregnant women the effect of the administration of these hormones on the excretion of vitamin C in the urine is just the reverse, i.e., when oestrin is administered the excretion is *high* and *low* when

Graph 5.



Graph 4.

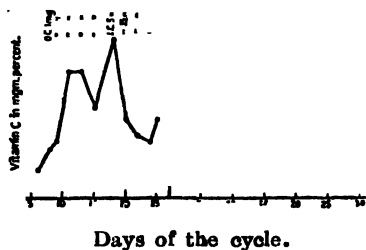


luteal hormone is administered. Graphs 4 and 5 illustrate this point. The vitamin C test can, therefore, be used in two ways in diagnosing pregnancy.

(vi) There is, as far as I know, only one fallacy in using the test for diagnosing pregnancy, and that is in pituitary hypofunction where a similar picture is seen, *i.e.*, the excretion of vitamin C is *high* when oestrin is administered and *low* when the luteal hormone is administered.

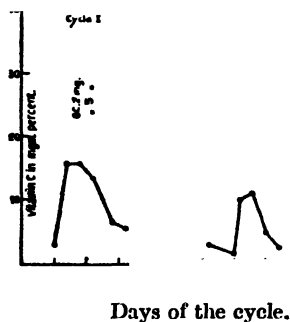
Graph 6 depicts two menstrual cycles of a woman of pituitary hypofunction. She was suffering from secondary amenorrhoea and the pituitary type of obesity. The last menses was two months previously. In the first cycle oestrin and progesterone were administered by injection consecutively and in the

Graph 6.



Graph 7.

Graph 8.



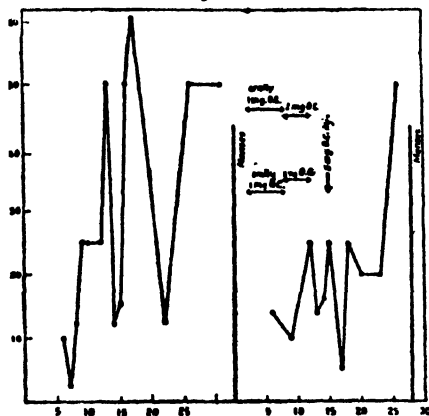
second cycle prehormon was given. It will be noticed that the latter exerted no influence on vitamin C excretion. The treatment regularized her menses but the obesity remained the same.

Graph 7 is that of a normal case without any hormonal deficiency. In pituitary hypofunction the vitamin C excretion is *low* in the luteal phase of the menstrual cycle, while, as was shown in my previous papers, it is comparatively *high* in normal cases.

Graph 8 is illustrative of this phenomenon.

Graph 9 is that of a case of sterility diagnosed in England as one of pituitary hypofunction. The vitamin C tests showed anovulation in the first cycle and when ovocyclin was

Graph 9.

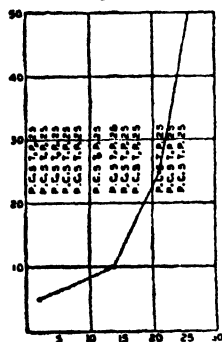


Days of the cycle.

nistered in the second cycle, there was ovulation, proving conclusively that it was a case of hypogonadism and not of hypopituitarism. She became pregnant without any other treatment. The vitamin C test thus helps in diagnosing pituitary hypofunction.

Graph 10.

Graph 11.



Days of the cycle.

Days of the cycle.

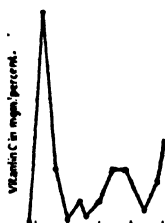
(vii) The graph (10) of a case of infantile uterus treated with a combination of oestrin, progesterone and testicular hormone is given.

(viii) In striking contrast to the above graphs is graph 11, that of a male while being treated for psychic aspermia (no seminal discharge) with testicular and adrenal cortex hormones.

(ix) I have noticed during the course of my experiments a few atypical and irregular graphs. See graphs 2, 12 and 13. It may be mentioned that in asthenia and constitutional disorders such graphs are common. See graph 12 which is that of a case of bronchitis.

There were other cases in which no constitutional cause was present. Curiously, such graphs were seen in cases where the menses were irregular and the menstrual cycle prolonged. They were also noticed in cases of sterility and in no case has the woman conceived in a cycle in which such irregularity was noticed. Such irregularity often alternates with the normal

Graph 12.



Days of the cycle.

Graph 13.



Days of the cycle.

picture when conception is possible. The woman whose graph is No. 12 conceived two cycles later.

It was suggested that the atypical urine picture might be due to some substance present in the urine. Complete chemical and bacteriological investigation failed to show any substance likely to affect the dye solution. I am inclined to think that such cycles are anovulatory, caused by deficient follicular hormone, treatment with which usually brings the cycle to normal. The test is, therefore, helpful in diagnosing ovarian hypofunction. Out of 87 cycles studied, the irregular picture was seen in 19 cycles—5 cycles in women with irregular menses, 11 in cases of sterility and 2 in cases for which no explanation was possible. Out of 40 cycles of sterile woman studied, 11 cycles were irregular. It is believed that salicylates upset the vitamin C test and such drugs are, therefore, forbidden during the tests.

(x) If the day of ovulation is known by the vitamin C test, it can be utilized as a birth-control measure. I have discussed this subject in detail in my book, *Birth Control Simplified*. Suffice it to say here that as multi-ovulation is possible in any cycle, the tests have to be carried out right through the end of every cycle.

Explanatory Note—In my previous papers, I offered no explanation why the vitamin C test of urine for ovulation makes it possible to diagnose hormonal variations in the system. Even now I can think of no satisfactory explanation. In this paper one point stands out clear, *viz.*, when prolactin is excreted in the urine, as in pregnancy, the tests show a picture just opposite to the normal.

The vitamin C test and the interpretation of the graphs in this paper are the same as those described in my last.

In the graphs

C. stands for redoxon (Roche)			
O.C.	„	„	ovocyclin P
L.C.	„	„	lutocyclin
T.P.	„	„	perandren
P.C.	„	„	percorten—all products of Ciba Ltd.

Summary—The vitamin C test for ovulation helps

- (i) in diagnosing pregnancy and incomplete abortion,
- (ii) in diagnosing pituitary and ovarian hypofunction, and
- (iii) in the treatment of sterility.

No satisfactory explanation is possible as to why it is so.

Acknowledgement—For these studies, redoxon and the dye tablets were supplied free of cost by Messrs. Hoffman La Roche and the hormonal products by Messrs. Ciba Limited.

Conclusion—To summarise, the practical applications of the vitamin C test for ovulation are :

1. To decide the type of a menstrual cycle, whether anovulatory, uniovulatory or multiovulatory,
2. To decide the actual day of ovulation,
3. To diagnose early pregnancy,
4. To detect incomplete abortion, and
5. To diagnose pituitary and ovarian hypofunction.

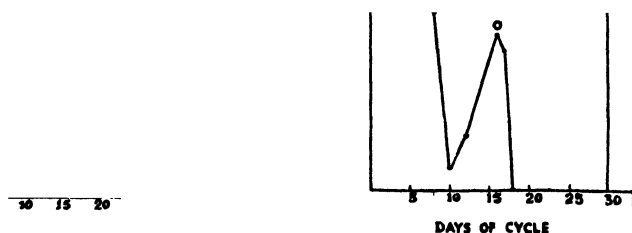
In my earlier experiments, I gave before each test 300 mgm. of vitamin C, which later I reduced to 200 mgm. Now I find that 150 mgm. is ample. Then again, vitamin C was administered only on the days the tests were carried out. I find now that for greater accuracy the woman should take 150 mgm. daily, whether the tests are done or not, during the period of investigation.

The quantity of urine passed varies with the weather and the amount of fluid in-take. This, therefore, upsets the test to a certain extent. I, therefore, now calculate the actual amount of vitamin C excreted. For this the whole quantity of urine voided at the time of the test should be measured. The calculation is made as follows:

Suppose the quantity of urine voided is 250 c.c. and 6 c.c. of this are required to decolorize 5 c.c. of the dye solution. Divide 10 by 6, the quantity of the urine required to decolorize the solution. This gives 1.6 which is multiplied with the total quantity of urine passed, 250. The result is 400. This is divided by 100, leaving 4 mgm., the actual excretion of vitamin C. Two graphs are given illustrating tests done in the same cycle by my original method and the one now described. In the first graph, the quantity of urine required to decolorize the solution is plotted and in the second, the actual amount of vitamin C excreted in the specimen of urine.

Graph 14

Graph 15



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